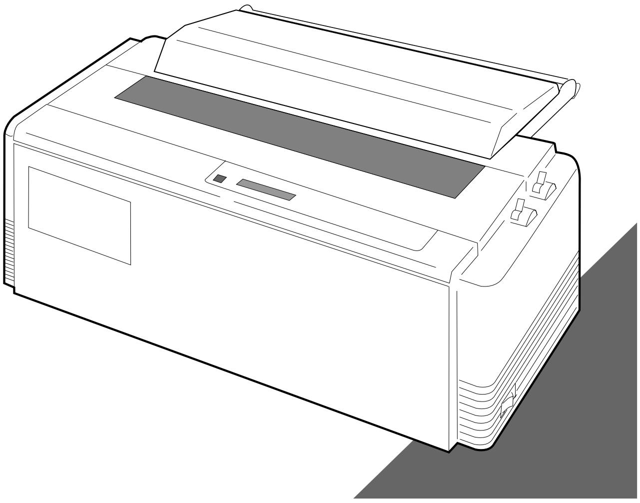
BP-6000

OWNER'S MANUAL



SEIKO Precision

Warning:

“This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in strict accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient the receiving antenna
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

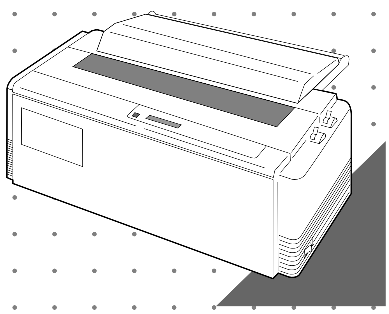
“It is necessary to use shielded interconnect cables to insure compliance with FCC Class B limits for radio frequency emissions."

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

BP-6000

OWNER'S MANUAL

18-pin wide-carriage
dot matrix printer



As an ENERGY STAR Partner, SEIKO Precision Inc. has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

- Outline of the International ENERGY STAR Office Equipment Program -

The International ENERGY STAR Office Equipment Program is an innternational program that promotes energy saving through the use of computers and other office equipment. The program backs the development and dissemination of products with functions that effecyively reduce energy consumption. It is an open system in which businness proprietors can participare voluntarily. The targeted products are office equipment such as computers, displays, printers, facsimiler, and copiers. Their standarads and logos uniform among participating nations.

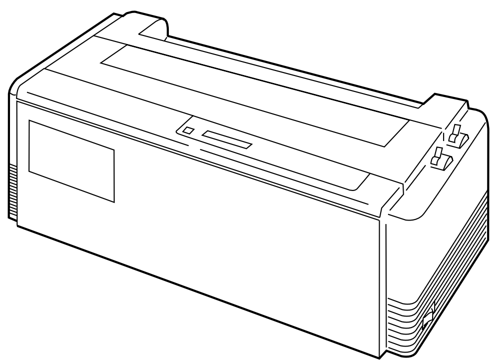
SEIKO Precision Inc.

This manual is for the following two models of the printer.

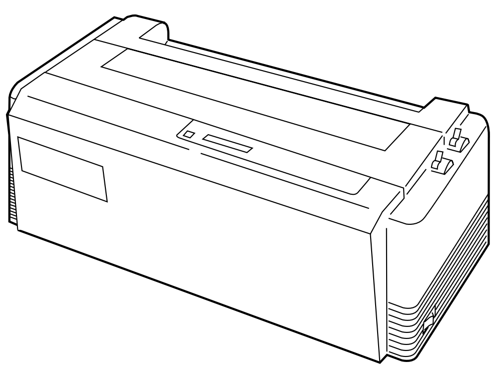
Although these two models, Model A and Model B, look different,
the difference is only the appearance of the casing areas at the front. The functions of these models are very much the same.

Refer to the manual of the model Model A, for the manual of the model Model B.

Model A



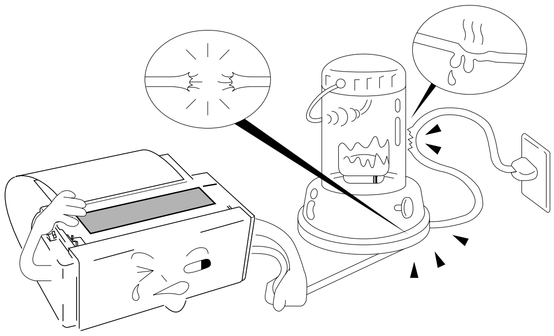
Model B



Contents

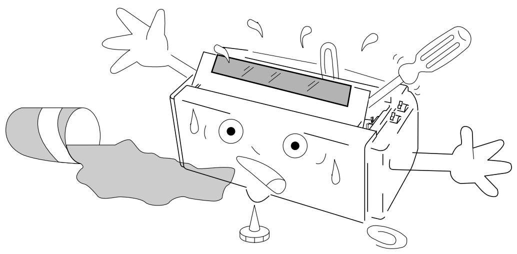
Caution for use

❑ Power sourc e



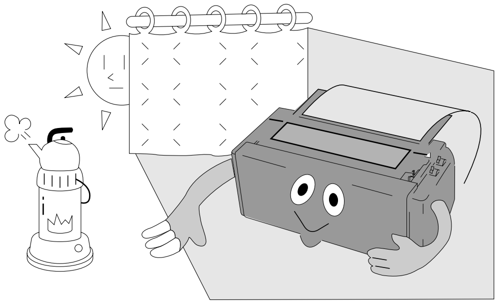
- Be sure to insert the power plug only in a wall unit of the voltage designated in the voltage selector switch and on the rating plate on the back of the unit.
- Do not place the power cord near heat sources or place heavy objects on it. Do not bend or twist the power cord.

❑ Foreign matter and water



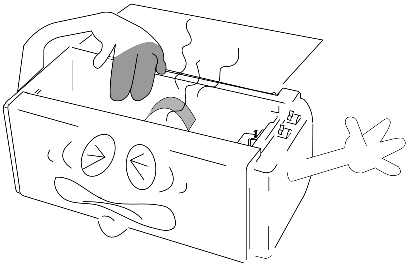
- Keep your hands and personal items, such as scarfs and ties, away from the carriage mechanism while the printer is operating. The carriage moves with considerable force.
- Keep the printer dry. If you accidentally spill water on the machine, turn the power off immediately and wipe it dry. Do not turn the power on until the machine is completely dry.

❑ Installation environment



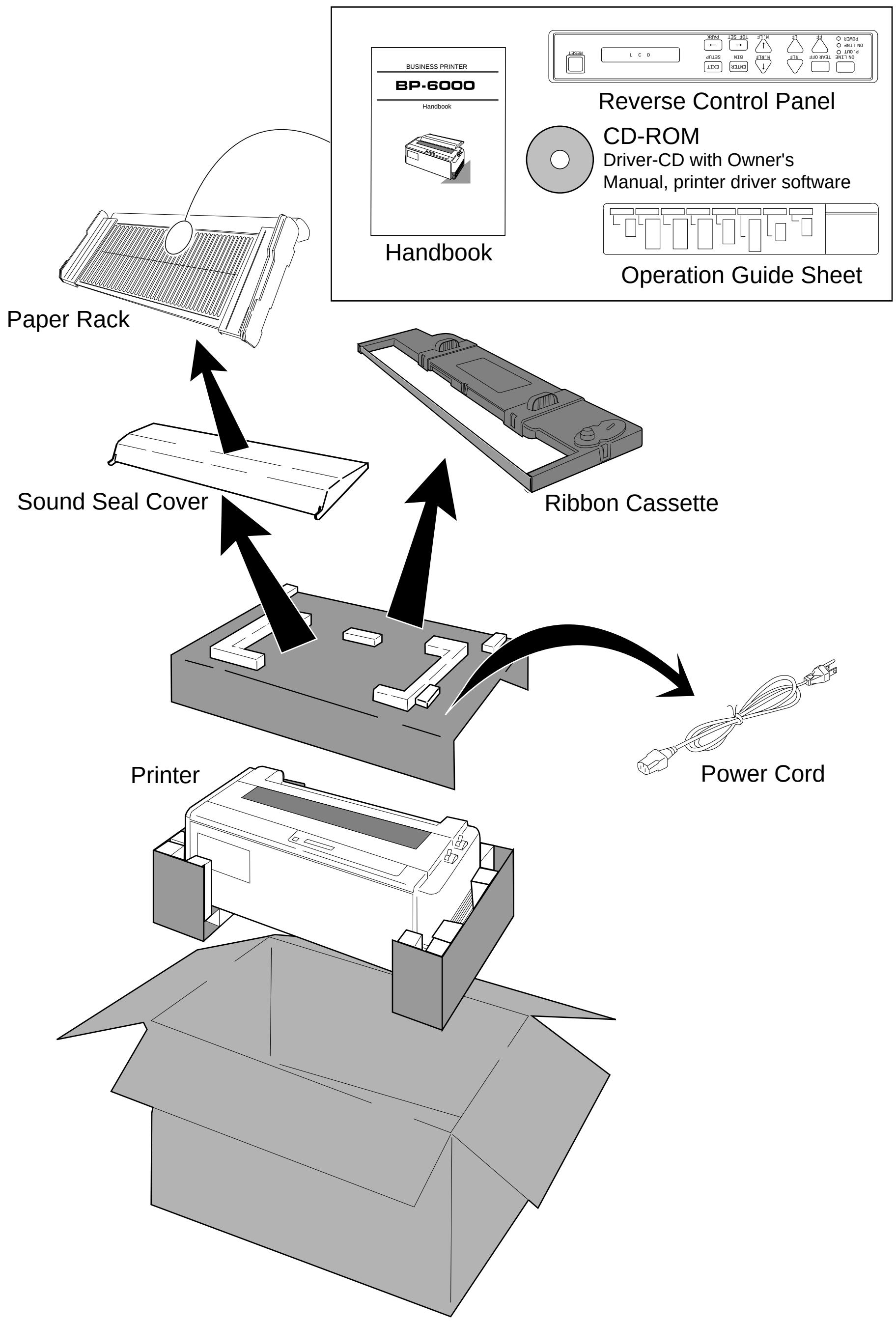
- The printer should be used where humidity is low, where there is little dust, and where the printer is not in direct sunlight.
- Avoid placing or leaning anything on top of the printer. If you accidentally drop any object into the machine, turn the power off immediately, then carefully remove the object.
- Do not twist the ribbon while installing it.

❑ Operating condition



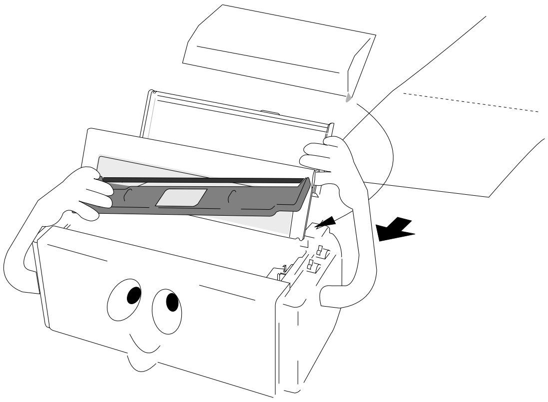
- Wait at least two seconds after turning power off before turning it back again. The initialization process may not be performed correctly if this is not done.
- Do not touch the print head immediately after printing because it is too hot.
- Never operate the printer without paper or paper properly installed. If you use paper that is not as wide as the platen, be sure that printing does not exceed paper width. Use software control to change the width of the print line.
- Never insert or pull out an interface cable while the power to the printer and computer is on.
- Be sure to turn off the printer before turning off a connected host computer.

_Unpacking the printer



Quick startup

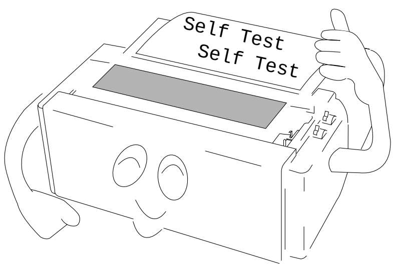
To make your first print, follow the procedure below . For more detailed instructions on setting your printer, please refer to the page indicated.



❑ To set up the printer

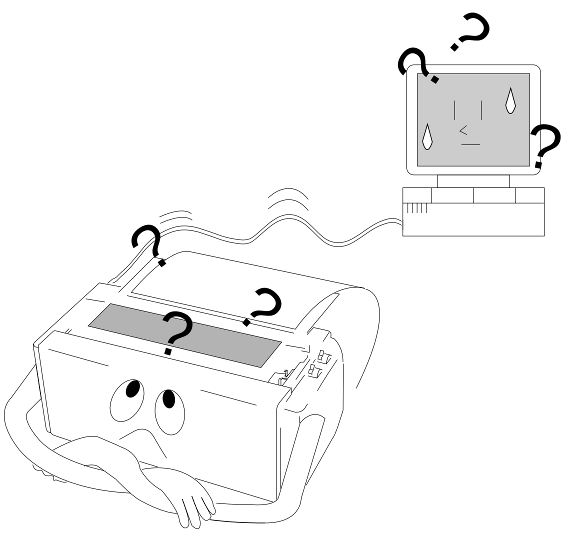
1. Install the paper rack, the sound seal cover, and the ribbon cassette — Pages 10 and 11.

2. Load the single cut sheet paper or fanfold paper. Press the FF key to load the paper — Pages 13 and 14.



❑ To make a test print

1. Set the paper size to the printer in the setup options — Pages 28 and 29.
2. Press the LF key and hold while initializing the printer by the RESET key. Hold the LF key until the self test starts — Page 21.



❑ To connect your computer

1. With all equipment turned off, connect the printer to your computer. Interface cable is purchased separately — Page 12.

2. Use the extended setup options (emulation type and communication enhancement section) to match the specification needs between the printer and your computer — Pages 47 to 50.

3. Select the printer driver from your application software — Pages 40 and 54.

1. Introduction

Features

❏ Wide selection of paper size

- Single cut sheet papers — A3, A4, B4, B5, Letter, Legal
- Fanfold continuous paper — 5 - 16 inch wide paper
- Multi-part paper — Original plus 6 copies
  (total clearance: 0.41mm (0.016”)
  Double, triple, or quadruple strikes to strengthen the copy quality (Multipart mode)
- Labeling paper — Label peel-proof capability

❏ Many variations of font types and character spacings

- 2 resident fonts — Roman and Sans serif
- 6 character spacings — 10, 12, 15, 17.1, 20 characters per inch (CPI), and proportional characters

❏ Easy operation

- User programmable files give an instant switch to different interface configuration.

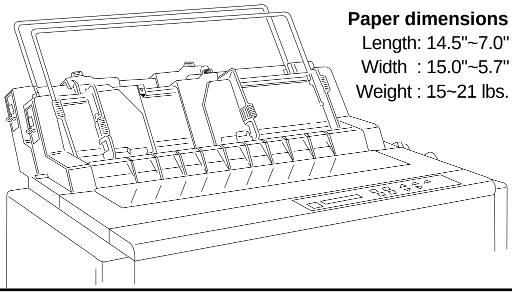
❏ Superb compatibility and connectability

- Compatible to major printer emulations, IBM and Epson printers.
- Communication protocols adjustable to any computer.
- Interface connections provided for parallel and RS-232C.
- Parallel and serial interface are switched automatically, when "AUTO" setting is selected.

Options and expendables

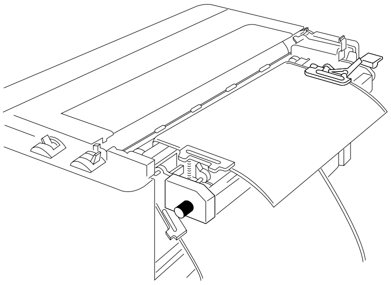
The Cut Sheet Feeder provides fast and automatic feeding of Cut Sheet on the BP-6000. It greatly enhances the speed and efficiency of document printing by feeding of up to 80 single sheets of paper without reloading.

Paper dimensions
Length: 14.5"~7.0"
Width : 15.0"~5.7"
Weight : 15~21 lbs.

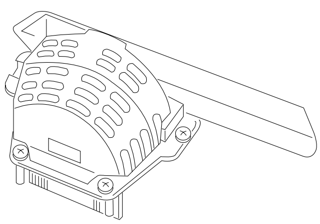


Cut Sheet Feeder
Bin1 (#BP-78009)
Bin2 (#BP-78009E)

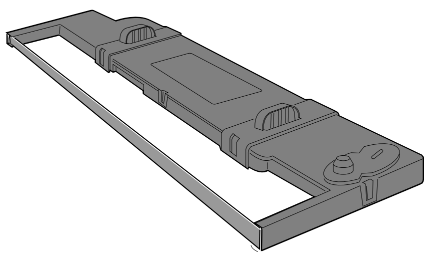
We recommend the use of the Pull Tractor, especially, when using the extra-thick papers or performing continuous operation. This is the preferred path since it is the most efficient paper feed path.



Pull Tractor (#BP-57008)



Matrix Print Head (#BP-57090-1)

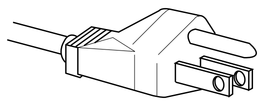


Ribbon Cassette (#SBP-1051)

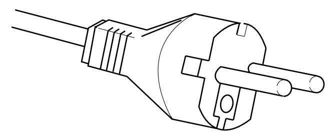
❑ Power cord

One of the following plug types is supplied. See "Connecting the power cord" on page 12.

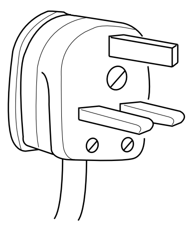
Please see a rating plate on the back of your printer for appropriate input voltage and consult your dealer for a specific type of power cord.



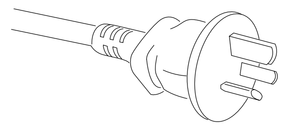
120V For USA



220-240V For Europe

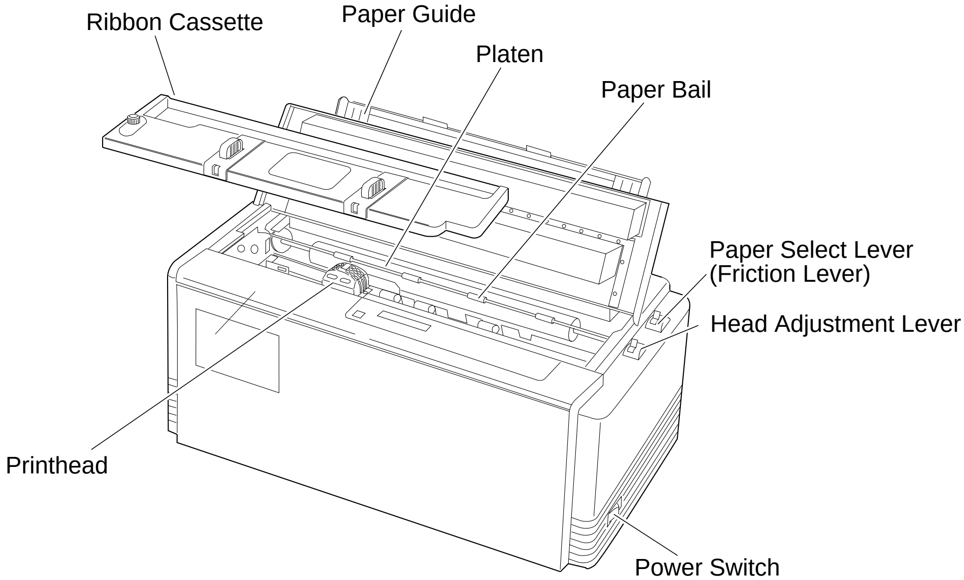


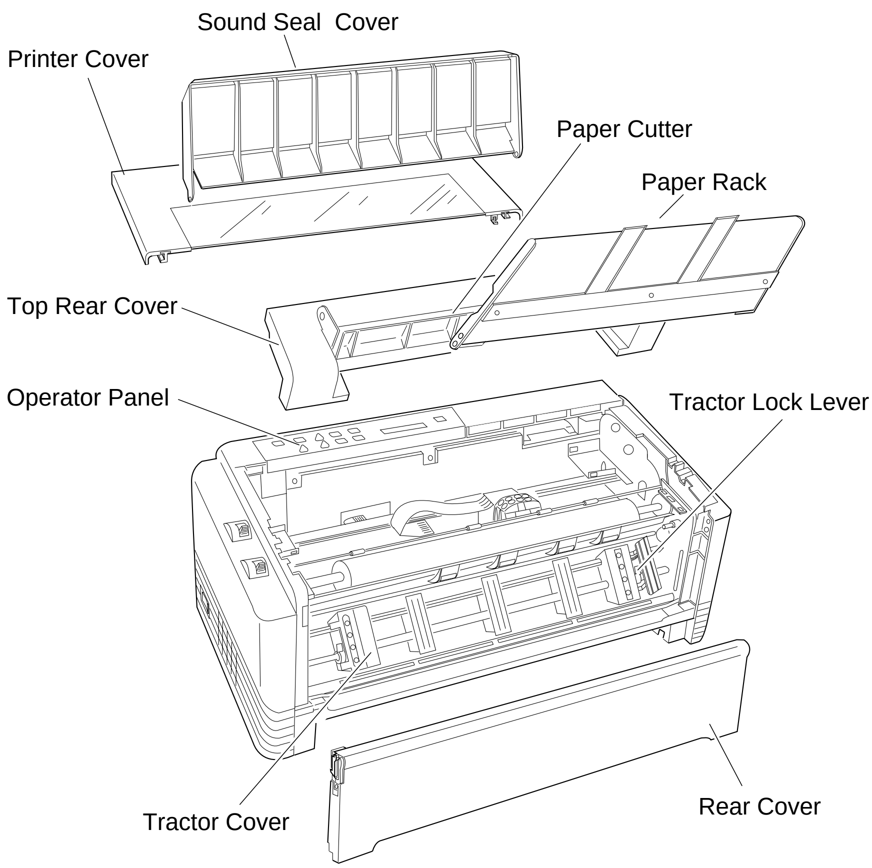
240V For U.K.



240V For Australia

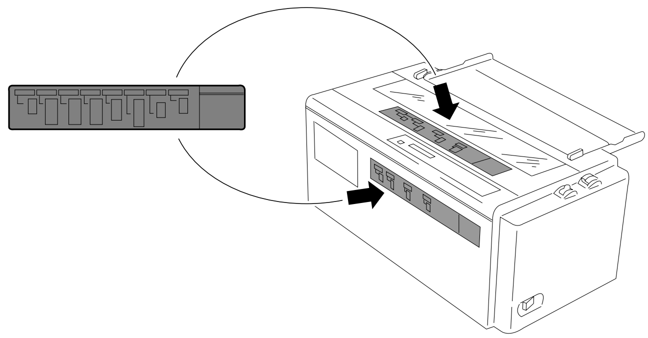
Printer description



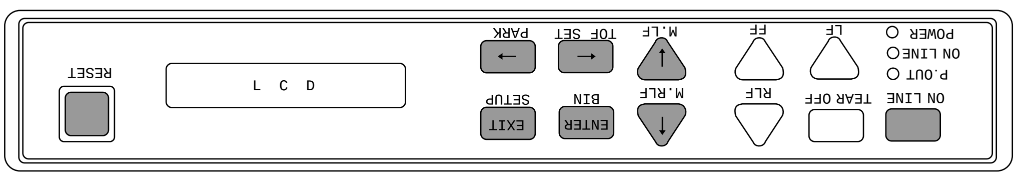


❑ Operation guide sheet

The operation guide sheet helps you to operate some of the basic options on the front control panel. You can peel the sheet backing paper to stick anywhere on your printer.



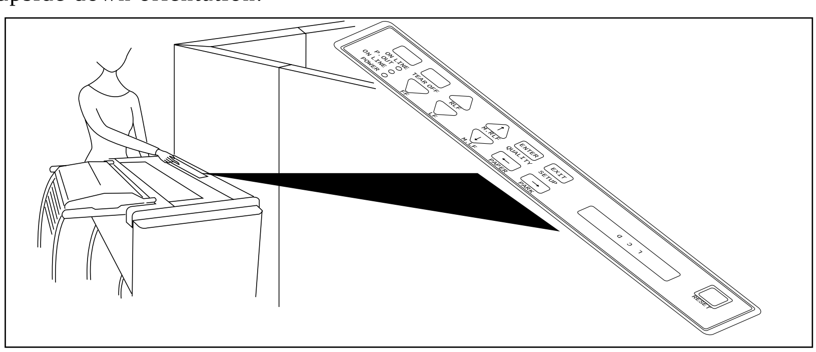
❑ Reverse control panel sheet



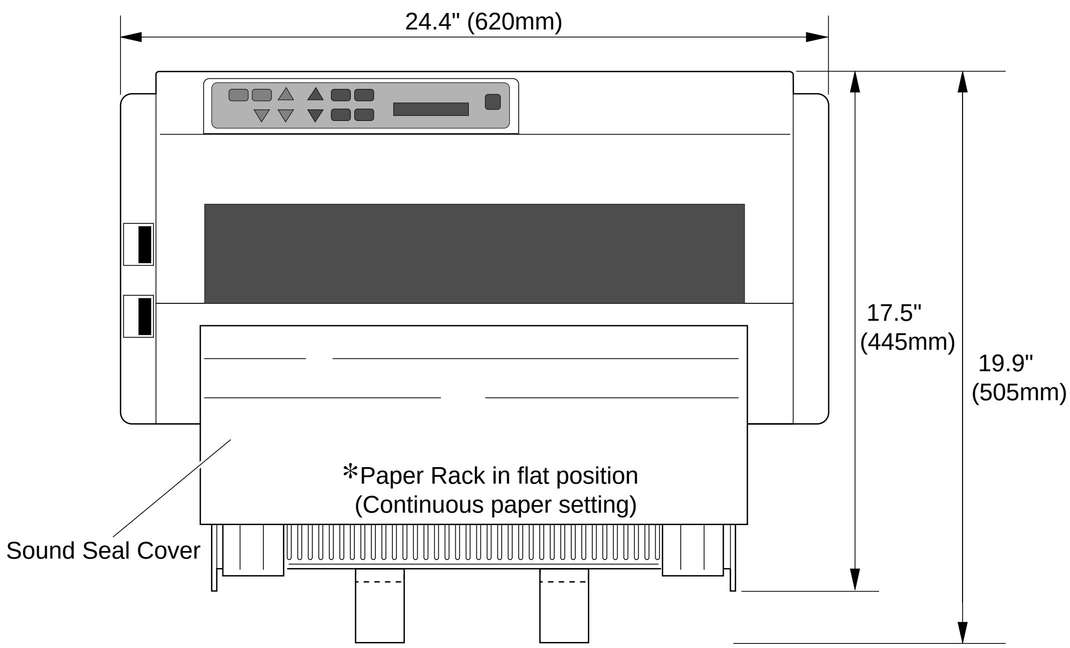
Installation

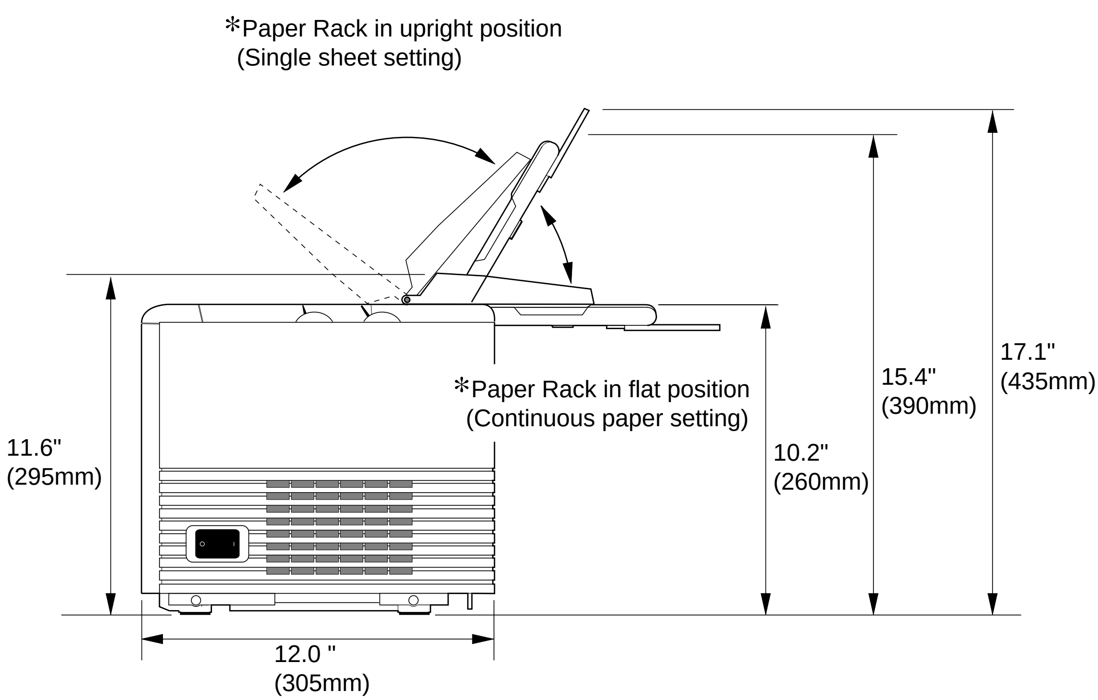
The reverse control panel sheet allows you to easily read the function key labels from the back of the printer. In situations where working from the back of the printer is convenient, simply lay the reverse control panel sheet in position over the standard control panel.

Note:
If you set the invert display mode in the extended setup options, the display messages also become upside down orientation.



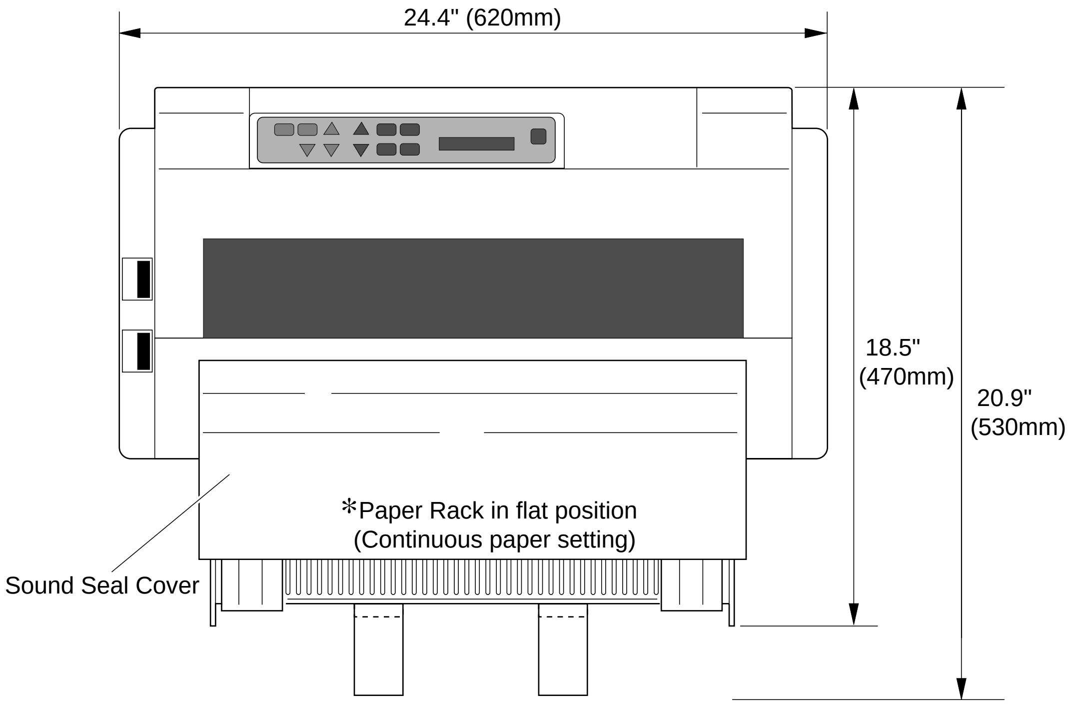
❑ Physical dimension(Model A)



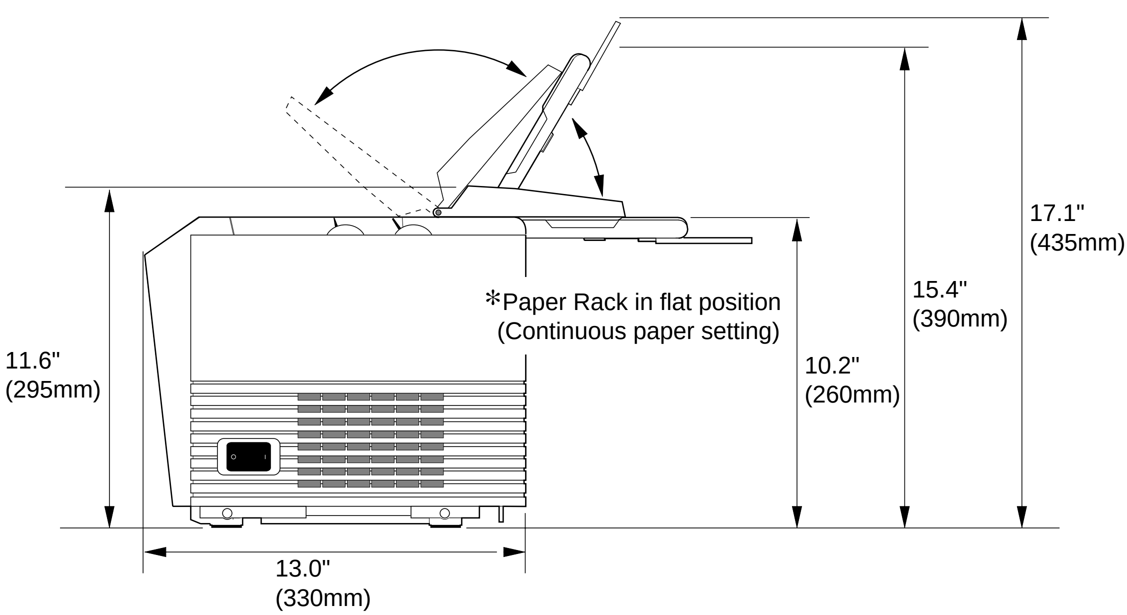


Weight: 44.1 lbs. (20 kg)

❑ Physical dimension(Model B)



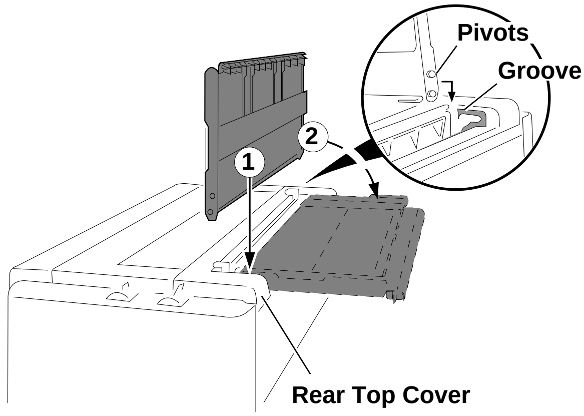
*Paper Rack in upright position
(Single sheet setting)



2. Setting up

Installing the paper rack

1. Slide both paper guide to the extreme left and right edges of the paper rack.
2. With the two small pivots on either side of the paper rack downward, fit the pivots in the groove on the rear top cover.
3. Place the paper rack in upright position for single cut sheet paper and lay it down for fanfold continuous paper.

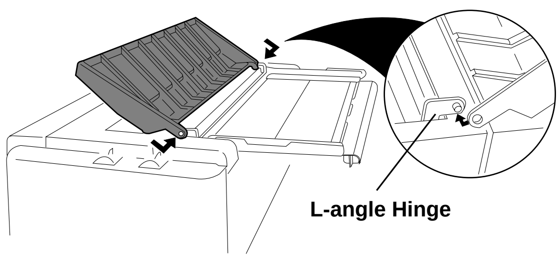


Note

The paper guides should be placed to the out edges during the installation or removal of the paper rack.

Installing the sound seal cover

1. Lay the sound seal cover upside down on the printer.
2. Fit one of the holes of the cover to the stud of the L-angle hinge on one side of the printer.
3. Fit the other hole to the other stud by pressing the L-angle hinge inward then out through the hole.



Note

Make sure that both studs are out through the hole completely, otherwise, the sound seal cover will be stuck in place.

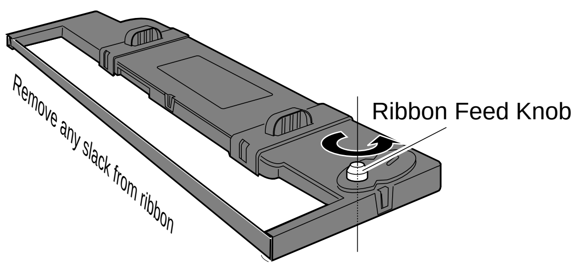
Installing the ribbon cassette

Turn OFF the printer's power and before the installation. However, the power should remain ON if data is in the printer waiting to be printed.

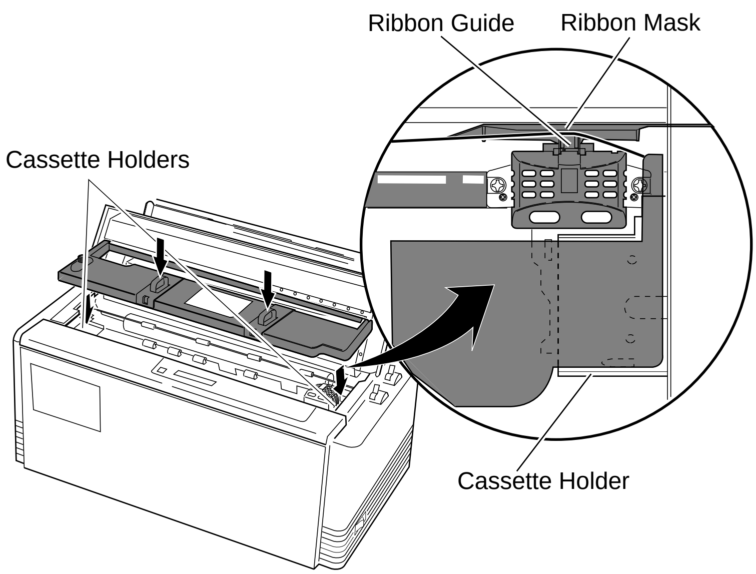
1. Open the printer cover.
2. Manually move the print head to the extreme right side of the printer for easy installation of the ribbon. Do not try to move the print head if the power is on.

CAUTION
Do not touch the print head if the printer has been running for a long time. Wait until the print head is cooled off.

3. Turn the ribbon feed knob in the direction of the arrow on the knob to remove any slack in the ribbon.



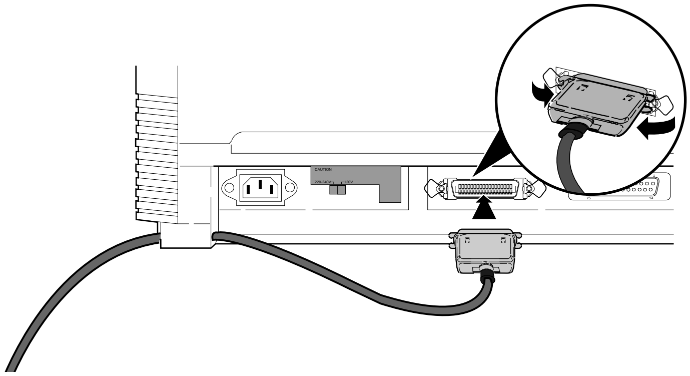
4. Place the ribbon cassette on the left and right cassette holders, such that the ribbon rests on the ribbon guide. Check to be sure that the ribbon drive shaft on the left cassette holder is inserted in the hole on the bottom of the ribbon cassette.
5. Turn the ribbon feed knob in the direction of the arrow on the knob to remove any slack in the ribbon.
6. Replace the front printer cover and set the head adjustment lever to the proper position for the best print quality.



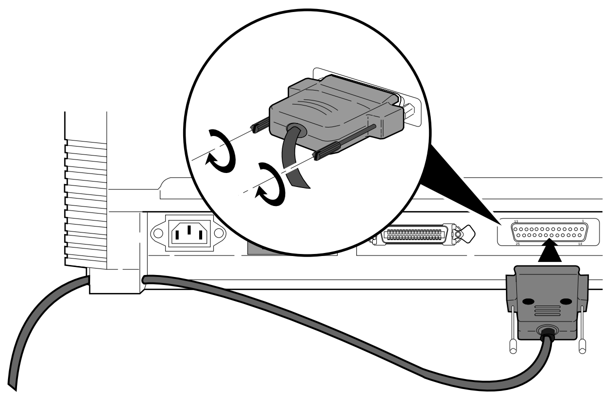
Connecting the computer

The printer has a parallel interface connector (Centronics) and serial interface connector (RS-232C). Before you connect an interface cable to your computer, you need to know what type of printer driver is supported by your software applications and what type of connector is needed to attach the printer to the computer.

❏ **Parallel Interface 36-pin plug**

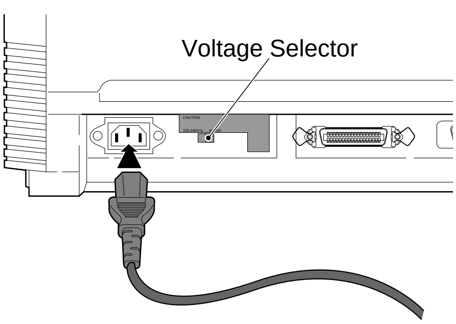


❏ **Serial Interface 25-pin plug**



Connecting the power cord

Check the power requirement printed on the rating plate on the rear of the printer before attaching the power cord and turning on the printer. Both **POWER** and **P.OUT** lamps light up when the printer is switched on correctly.



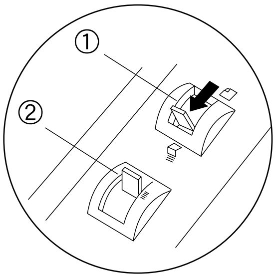
120V : USA, Canada
220-240V : Europe,Asia,Oceania

Note

For continued protection against risk of fire and destruction of power PCB Assembly, switch the voltage selector according to using voltage.

Loading the paper

❑ Fanfold continuous paper

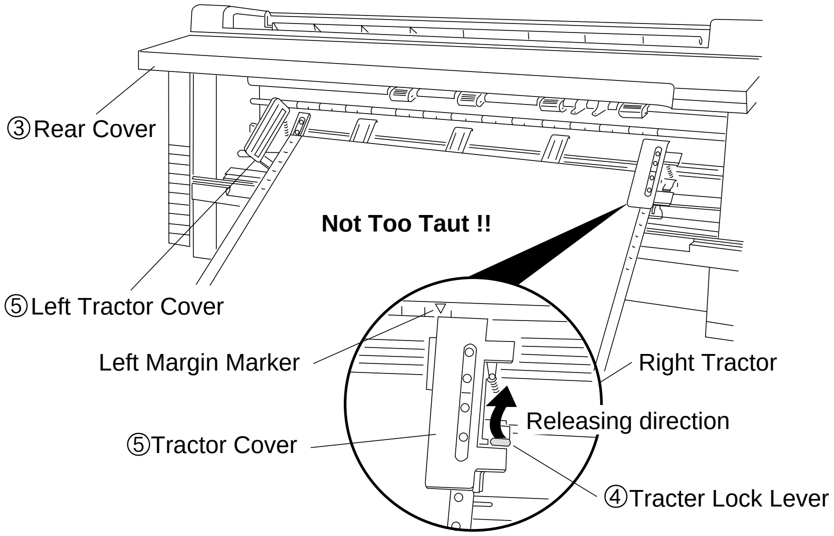


1. Move the friction lever ①toward the front of the printer to set the ***FANFOLD*** paper setting.
2. Set the print head adjustment lever②. In general, position 1 is used for one-part paper. (See page 15)
3. Remove or open the rear cover ③of the printer to lock the cover in the open position.
4. Release the tractor lock levers ④ (upward), and move the right tractor to the marked position as shown in the figure, and lock it in place.
5. Open both tractor covers ⑤ and place the fanfold paper so that the tractor pins are aligned with the holes in the paper. Carefully close both tractor covers.

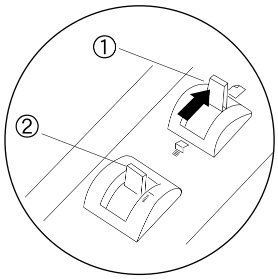
Caution

Be careful not to catch your finger when closing the tractor covers.

6. After the paper is properly installed, re-adjust the left tractor to a position to keep the paper taut (but not too taut) between the left and right tractors.
7. To load the paper, press the **PARK** key or the **FF** key on the front panel. The fanfold paper is fed to the top-of-form position 17/72 inch (6mm) below the top edge of the paper. The top-of-form position can be adjusted from 0/72 inch to 180/72 inch (64mm) in the setup options.
8. The paper bail automatically lowers to press the paper against the platen when the leading edge of the paper feeds more than one inch onto the platen.



❑ Single sheets paper

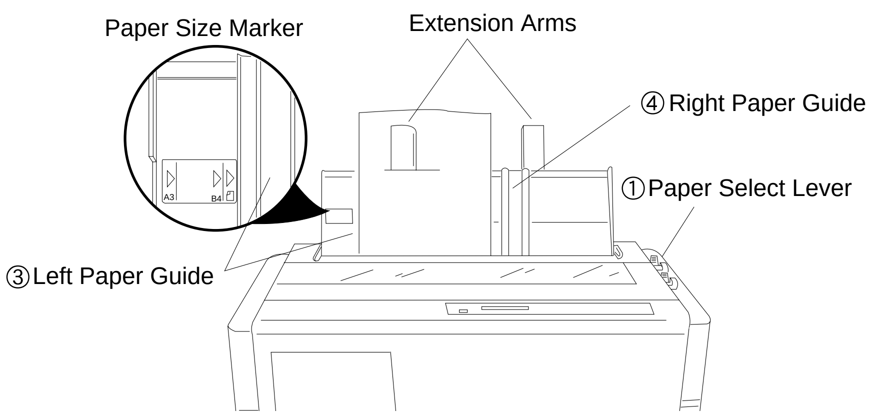


1. Move the paper select lever ①toward the rear of the printer to the ***SINGLE SHEET*** setting.
2. Set the print head adjustment lever ②. In general, position 1 is used for one-part paper. (See page 15)
3. Raise the paper rack to the vertical position and adjust the left paper guide ③ to the proper position for the size of the paper being used.

Note

If the paper is not loaded on the proper mark, the printer may not detect the paper and will issue PAPER ERROR.

4. Place single sheet of paper against the paper rack and let it slide behind the platen.
5. Adjust the right paper guide so that it comfortably holds the paper in between the two paper guides.



6. Press the **PARK** key or the **FF** key to load the single sheet paper to the top-of-form position 17/72 inch (6mm) below the top edge of the paper. The top-of-form position can be adjusted from 0/72 inch to 180/72 inch (64mm) by using the front panel controls in the setup option.

Note

If the paper is not completely fed in, slightly push the paper downward. If it is still not fed in, look in the TROUBLESHOOTING section.

7. The paper bail automatically lowers to press the paper against the platen when the leading edge of the paper feeds more than one inch onto the platen.

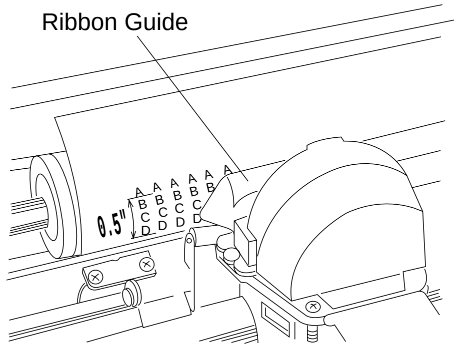
Notes

1. Extension Arms
   The extension arms are used to keep large size (Legal, B4) cut sheet paper from falling behind the paper rack. When using the extension arms, pull the arm until it clicks and locks in place.
2. **RLF**, **M.RLF**, **TEAR OFF**, **PARK** keys are invalid in the cut sheet paper.

❑ Vertical print position alignment

Current print line location

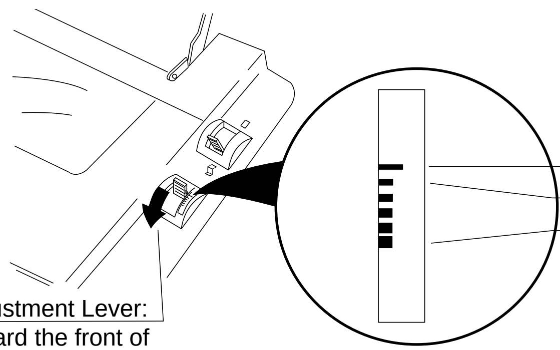
The current printing line (DDD...) is the third line down from the top of the ribbon guide (line spacing is 1/6 line: 6 LPI).



Adjusting the print head position

The head adjustment is used to obtain the best print quality possible for the specific paper being used. The print head position can be adjusted to accommodate printing on single and multipart forms. When using multipart forms, move the print head adjustment lever toward the front of the printer to widen the gap between the print head and the platen.

In general, position 1 is used for one-part paper. Moving the head adjustment lever one notch adjusts the print head gap an amount corresponding to the addition of one more paper part. Re-adjustment of the lever may be required depending on the quality of the actual printout:
• If smears are shown on the paper, the gap is too narrow.
• If the printed image is too light to read, the gap is too wide.



Notes

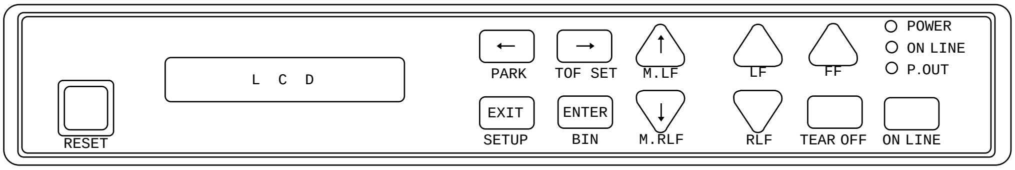
1. The print head adjustment lever should be set before loading the paper to avoid any paper jams.

2. If the printed image on the last copy of a multipart form is too light to read, set the MULTIPART mode in the basic setup options (see page 30). This will increase the striking intensity for multipart forms by double or more striking each character.

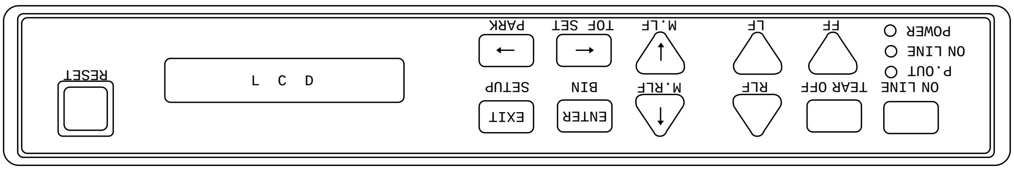
3. Control panel and operations

Control panel and indicators

Standard Panel



Alternate up-side down reverse panel



❑ Indicators

- **Display window** Liquid Crystal Display (LCD)

Displays status and errors during operation and menus in the setup options.

The followings are some examples of the display messages.

```
ONLINE
```

Status message
This indicates that the printer is in online and ready to print.

```
COVER OPEN
```

Warning message
This indicates that the printer cover is open. Close the cover to resume the operation .

If the printer is in the offline mode, the following appears on the display.

```
OFFLINE DRAFT
```

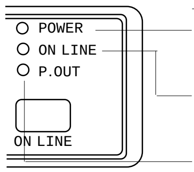
Status message
This indicates a printing quality selected in the setup options.

This indicates that the printer is in offline.

QUALITY	PRINT SAMPLE
NLQ	NLQ : ABCDEFGHIJKLMNopqrstuvwxyz
DRAFT	DRAFT : ABCDEFGHIJKLMNopqrstuvwxyz
S.DRAFT	S.DRAFT : ABCDEFGHIJKLMNopqrstuvwxyz
S.S.DRAFT	S.S.DRAFT: ABCDEFGHIJKLMNopqrstuvwxyz

Note: Refer to the Basic setup options or Extended setup options for their display messages.

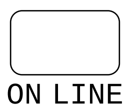
- **Indicator lamps**



Lamp	**On**	**Off**	**Blinking**
POWER (green)	Power On	Power Off	—
ON LINE (green)	Online	Offline	Cover open, or Head overheat protection activating
P.OUT (umber)	Out-of-paper	Paper-in	Home sensor error, RAM error, or paper error.

❑ Function Keys

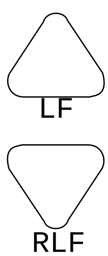
- **ON LINE**



Pressing this key places the printer offline so that the printer can perform some functions independent from host system. In the offline mode, data is not received. When the printer is offline, pressing the key places the printer online and ready to receive data from the host system.

The following keys are active only in the offline mode

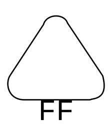
- **LF/RLF** (Line feed and reverse line feed)



When the **LF**/**RLF** key is pressed, paper is fed per the line spacing at the 6 line per inch forward or backward, respectively.
While this key is pressed and held, the paper is continuously fed forward or backward, respectively.

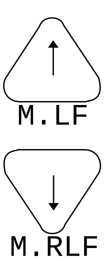
Note:
The reverse line feed can not be used with single sheet paper.

- **FF** (Form feed)



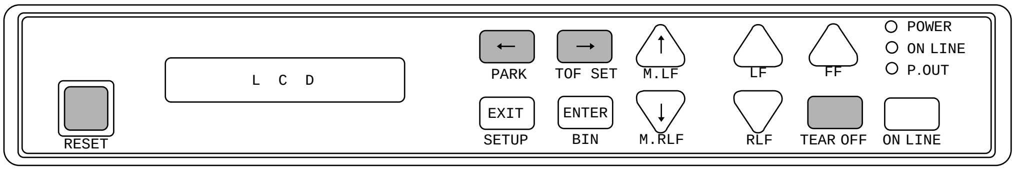
Pressing this key feeds the paper to the next top of form position. Single sheet paper is fed to eject.

- **M.LF/M.RLF** (Micro line feed/micro reverse line feed)

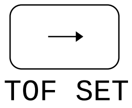


When the **M.LF**/**M.RLF** key is pressed, the paper is fed 1/432 inch forward or backward, respectively. This key is used to set the paper position.

Note:
The micro reverse line feed can not be used with single sheet paper.

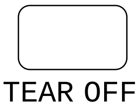


- **TOF SET**



Pressing this key sets the top of the form position at the current print head position. However, this TOF position will not be restored after the power is turned off.

- **TEAR OFF**

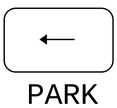


[Used only for fanfold paper]

Pressing this key advances the perforation of the form to the paper cutter so that the paper can be torn off from the rest.

If this key is pressed after the paper is torn off, the paper is fed backwards and the mode is returned to the offline mode. If the **ON LINE** key is pressed instead of the **TEAR OFF** key, the paper is fed backwards and then the mode is changed to the online mode.

- **PARK**



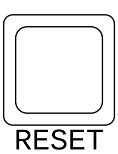
(Paper parking)

Pressing this key unloads the paper when the paper is loaded and loads the paper when the paper is not loaded.

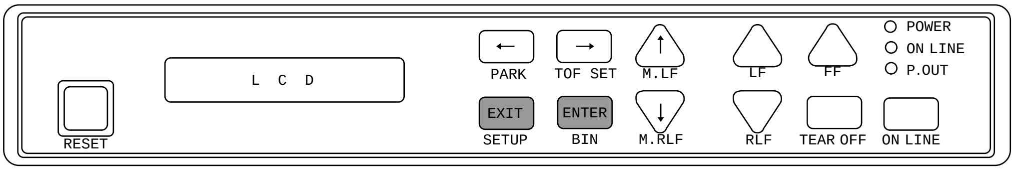
Fanfold continuous paper (Paper select lever in fanfold setting)
The paper is moved to the park position in the back of the printer by pressing this key. When pressing this key with the paper in the park position, the paper will be loaded to a print station which is between 0/72 and 180/72 inches from the leading edge of the paper, depending on the loading position programmed in the setup option.

Single sheet paper loaded (Paper select lever in single sheet setting)
The paper in the print station will be ejected. When paper is in the paper rack, the paper is moved to the print station by pressing this key.

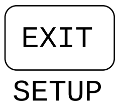
- **RESET**



When the **RESET** key is pressed, the printer immediately enters the reset state and prepares for the initialize operation, which is nearly the same initialize operation as when the power is turned on.



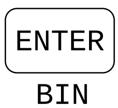
- **SETUP** (Alternate to the EXIT)



When the **SETUP** key is pressed in the offline mode, the printer enters the setup options. The setup options are explained later in the "Basic setup options".

In the setup options, this key is used as the **EXIT** key. When the key is pressed in the setup options, the printer exits from the setup options and enters the offline mode.

- **BIN** (Alternate to the ENTER)



This key is for selecting the active paper tray of the cut sheet feeder or the paper feed method: BIN 1, BIN 2, BIN 1+2, or MANUAL. BIN 1, BIN 2, or BIN 1+2 appears only when the cut sheet feeder (CSF) option is set. To register, select and hold the key for one second.

Note
The paper select lever must be switched according to the selection.

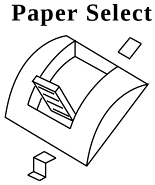
In the setup options, this key is used as the **ENTER** key. When the key is pressed in the setup options, the current selection in the setup options will register to the printer.

- **OTHERS**

The ←, →, ↓, ↑ and **ENTER** keys become effective only in the setup options entered by pressing the **SETUP** key. For more information refer to "Basic setup options"

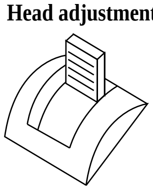
❑ Control Levers

- **Paper Select Lever**



The paper select lever serves to switch between the fanfold continuous paper setting and the single sheet paper setting (or CSF setting when CSF is installed).

- **Head adjustment Lever**



This lever adjusts the gap between the print head and platen. The correct gap adjustment for a different paper thickness is required to obtain optimum print quality. See also page 15.

Paper parking

This function moves fanfold paper back to the push tractor position (park station) so that single sheet paper can be used. Specially it is useful when switching from fanfold paper to single sheet paper.

- Pressing the **PARK** key removes the fanfold paper from the print station so that single sheet paper can be used.
- Switching of the paper select lever is required for the actual mechanical switching of the paper path.
- Pressing the **PARK** key when the printer is in the paper-out state loads the selected paper (fanfold or single sheet) to the top-of-form position.

The following chart explains the paper handling of the PARK key in the offline state:

Paper Select Lever	P.OUT Indicator	Action
Continuous Paper	ON	Autoload the paper (similar to the **FF** key)
	OFF	Park the paper in the push tractor position
Single Sheets	ON	Autoload the paper (similar to the **FF** key)
	OFF	Eject the paper (similar to the **FF** key)

Notes

1. Make sure that the setting of the paper select lever corresponds to the type of paper being used.

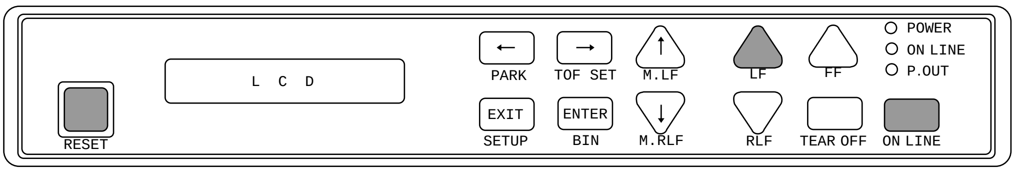
2. The paper park function causes a PAPER ERROR in the following situations:
   a) when the fanfold paper does not set in the park station (at the push tractors) after moving more than 22 inches backward

   b) when the paper (fanfold or single sheet) is not autoloaded to the print position after feeding more than 8 inches (At this time, the printer tries to sense the paper in the printer.)

   c) when the single sheet paper is not ejected from the printer after advancing more than 22 inches.

Printing test pattern

Before performing the printer's self test, be sure the ribbon cassette and paper are properly installed in the printer. The self test prints a continuous pattern of printable characters (ASCII character pattern) in either draft or near letter quality (NLQ).
While test printing is executed, the **ON LINE** lamp blinks and the LCD indicates "SELF TEST".



❑ To run the draft self test

Press the **LF** key while turning ON the printer's power. If the printer is already turned ON, the draft self test may be performed by pressing the **LF** key together with the **RESET** key.
Keep pressing the **LF** key until the self test begins.

❑ To run the NLQ self test

Press both the **LF** and **ON LINE** keys simultaneously while turning ON the printer. If the printer is already turned ON, the NLQ self test may be performed by pressing both the **LF** and **ON LINE** keys simultaneously together with the **RESET** key.
Keep pressing the **LF** and **ON LINE** keys until the self test begins.

❑ To stop the self test temporarily

Press the **ON LINE** key to stop printing.

❑ To resume the self test

Press the **ON LINE** key again to restart printing.

❑ To terminate this function

Press the **RESET** key or turn off the power.

Note

Before initiating the self test, make sure that the width of the paper, especially fanfold paper loaded in the printer fits within the maximum print length in a line selected in the extended setup options.

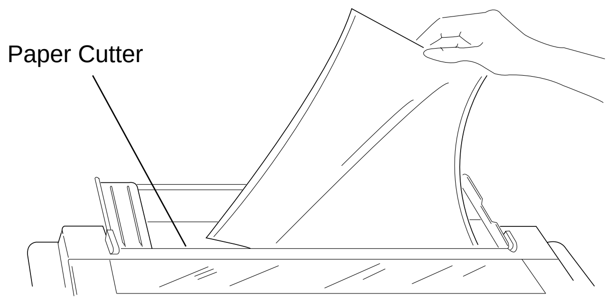
3. LINE WIDTH		Maximum printable column at 10 cpi
WIDTH:13.6 INCH	....	136 columns
WIDTH: 8 INCH	....	80 columns

Tearing off a form

(Used only with fanfold paper)

This function is activated by the **TEAR OFF** key and feeds fanfold paper so that the perforation is aligned with the paper cutter located at the top rear of the printer, thus enabling simple paper tearing. During the tear off operation, the **FF**, **PARK**, **M.LF**, and **M.RLF** keys are the only active keys and are used to correctly align the paper to the paper cutter.

After tearing off the form, pressing the **TEAR OFF** key a second time reverse feeds the paper to the top of the next available form.



Note

Pressing the **TEAR OFF** key (or the **ONLINE** key) the second time may return the paper to the original print position when the top edge of the form does not pass above the paper cutter prior to the first **TEAR OFF** operation.

Power-on operation summary

Operation (reference page)	LF	FF	ON LINE	PARK	TOF SET	M. LF	M. RLF	RLF	TEAR OFF	SETUP	BIN	RESET	POWER
Self test, draft (P21)	○											○	●
Self test,NLQ (P21)	○		○									○	●
Hex dump, draft (P57)		○										○	●
Hex dump,NLQ (P57)		○	○									○	●
Vertical alignment (P61)										○	○	○	●
EEPROM initialize (P55)	○			○	○	○							●

Notes

1. Use either the **RESET** key or power switch when the circle is in both the RESET and POWER columns.
2. EEPROM initialize operation requires the vertical alignment operation after the execution of the EEPROM initialize.

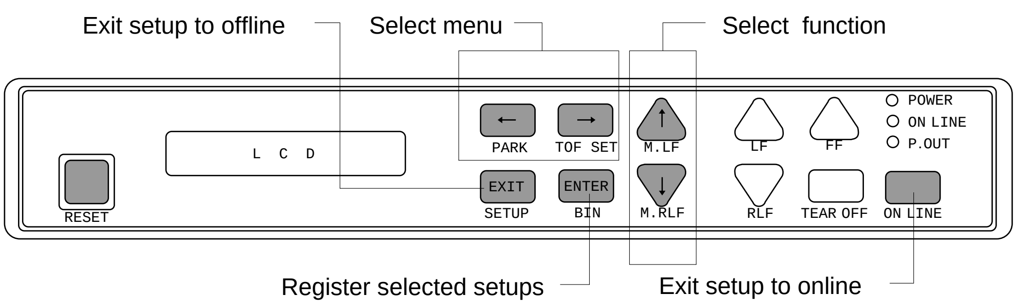
4. Basic setup options

About basic setup options

The setup options serve to define various initial states of the printer that are executed when the power is turned on or when the **RESET** key is pressed. In addition, this mode serves to redefine the font type, character spacing, and other parameters for the printer's current operating conditions. The parameters set in the setup options are stored in the memory of the printer and used as the default values in initialize operations.

❑ To set this option

When the **SETUP** key is pressed in the offline mode, the printer enters the function setup mode, where various functions can be set. The keys used in the function setup mode are described below.



← and → [Alternate to the PARK and TOF SET]
These keys are used to change the menu in the display, but cannot be used to select a menu item.

↓ and ↑ [Alternate to the M.LF/M.RLF]
These keys are used to change an item within a menu in the display, but cannot be used to set an item parameter.

ENTER [Alternate to the BIN]
When this key is pressed while an item on the menu is displayed, the content of the item is stored in the memory of the printer.
When the content of the item is saved, an asterisk (*) indicating that the item is the currently selected parameter is added at the end of the item.

EXIT [Alternate to the SETUP]
When this key is pressed, the printer exits from the setup options and enters the offline mode.

ONLINE
This key's function is similar to the **EXIT** key in that the printer exits from the setup options. At that time, if no errors or irregular conditions exist, the printer enters the online mode.

❑ Selection procedure example

The following example illustrates the correct procedure to select a letter-portrait paper size from the front panel:

1. Press the **ON LINE** key to enter the offline state. The LCD displays:

   `OFFLINE DRAFT`

2. Press the **SETUP** key to enter the SETUP options. The LCD displays:

   `1 FONT`

3. Press the Right Arrow (→) key to select the menu and to display:

   `4 PAGE SINGLE`

4. Press the Down Arrow (↓) key to step down the function items, and to display:

   `PG: LETTER PORT`

5. Press the **ENTER** key to select letter-size portrait as the desired PAPER SIZE. The LCD briefly displays the paper size with an asterisk at the end.

   `PG: LETTER PORT*`

6. Press the **EXIT** key to terminate the setup options and return to the offline state or press the **ON LINE** key to return to the on line state.

❑ Setup Memory

Current memory

The printer contains one current memory for automatically storing the preset setup states and three user memories for storing data that is designated by the user.

The current memory automatically stores the configuration when the setup options are terminated. When the power is turned on or when the **RESET** key is pressed, the printer automatically sets the configuration per the current memory. Thus, when entering the setup options, the contents of the current memory can be altered.

User memory

The user memories can store three different configurations. The user can set and recall the contents of the memory to configure the printer. When the power is turned on or when the **RESET** key is pressed, the contents stored in the user memories are not used as the initial values. To use the contents of the user memories as the initial values, it is necessary to select one of the user memories, MEM1 to MEM3, in the setup options and evoke the contents as the preset condition.

To use the contents of the user memory as the current setup, it is necessary to display the "`6. SELECT SETUP`" on the menu and select one of the user memories. Exiting from the setup options with a user memory selected will cause the contents of the user memory to be stored in the current memory which then becomes the printer initial values.

To store a configuration in a user memory, display the "`45. SAVE SETUP`" selection in the advanced setup options and select one of the user memories. The current setup content is stored in the specified memory when exiting the setup options.

Selecting font style

Sets one of the font options. The font can be changed by a software command.

1 FONT

FONT: DRAFT	....	Default font in a draft printing.
FONT: S.DRAFT		
FONT: S.S.DRAFT		
FONT: ROMAN	....	Default font in NLQ print mode.
FONT:SANS SERIF		

FONT	PRINT SAMPLE
DRAFT	DRAFT : ABCDEFGHIJKLMNopqrstuvwxyz
S.DRAFT	S.DRAFT : ABCDEFGHIJKLMNopqrstuvwxyz
S.S.DRAFT	S.S.DRAFT : ABCDEFGHIJKLMNopqrstuvwxyz
ROMAN	ROMAN : ABCDEFGHIJKLMNopqrstuvwxyz
SANS SERIF	SANS SERIF: ABCDEFGHIJKLMNopqrstuvwxyz

Selecting character spacing

Sets one of the character spacings. When CODE is selected, the character spacing can be changed by a software command.

When speed draft or super speed draft is set while a fixed spacing is designated, the character spacing becomes 12 CPI or 15 CPI, respectively.

```
2 CHAR PITCH
```

```
PITCH: CODE      ...................   Default character spacing is 10 cpi printing.
PITCH: 5 CPI
PITCH: 6 CPI
PITCH: 10CPI
PITCH: 12CPI
PITCH: 15CPI
PITCH: 17CPI
PITCH: 20CPI
 PROPORTIONAL
```

CHARACTER PITCH	PRINT SAMPLE
5 CPI	ABCDEFGHIJKLMNopqrst
6 CPI	ABCDEFGHIJKLMNopqrstuvwx
10 CPI	ABCDEFGHIJKLMNopqrstuvwxyz
12 CPI	ABCDEFGHIJKLMNopqrstuvwxyz
15 CPI	ABCDEFGHIJKLMNopqrstuvwxyz
17.1 CPI	ABCDEFGHIJKLMNopqrstuvwxyz
20 CPI	ABCDEFGHIJKLMNopqrstuvwxyz
Proportional	ABCDEFGHIJKLMNopqrstuvwxyz

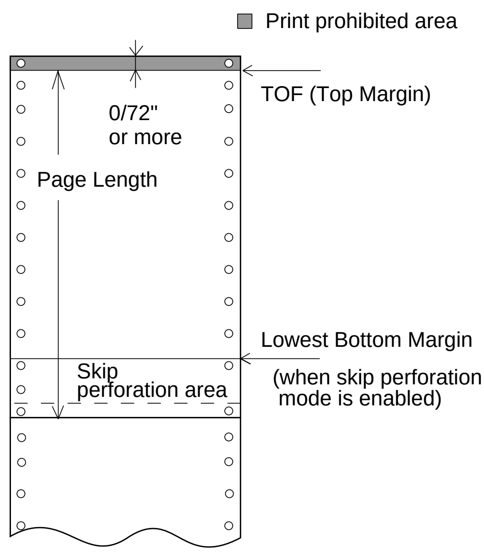
Selecting page length for fanfold paper

The page length selection varies`1` roughly from 2 inches to 22 inches according to the given options.

When CODE is selected, the page length can be changed by a software command. When the page length is other than CODE, it is a fixed length and a software command is ignored. The page length is the same as the distance between two perforations.

```
3 PAGE FANFOLD
```

PAGE: CODE	Default page length is 11 inches. The default page length can be set to 12 inches at "8.DEFAULT PG LNG" in the extended setup options on page 38.
PAGE: 2 INCH	
PAGE: 2.5 INCH	
PAGE: 3 INCH	
PAGE: 4 INCH	
PAGE: 4.5 INCH	
PAGE: 5 INCH	
PAGE: 5.5 INCH	
PAGE: 7 INCH	
PAGE: 8 INCH	
PAGE: 8.5 INCH	
PAGE: 10 INCH	
PAGE: 11 INCH	
PAGE: 12 INCH	
PAGE: 14 INCH	
PAGE: 15 INCH	
PAGE: 16 INCH	
PAGE: 16.5 IN	
PAGE: 17 INCH	
PAGE: 22 INCH	

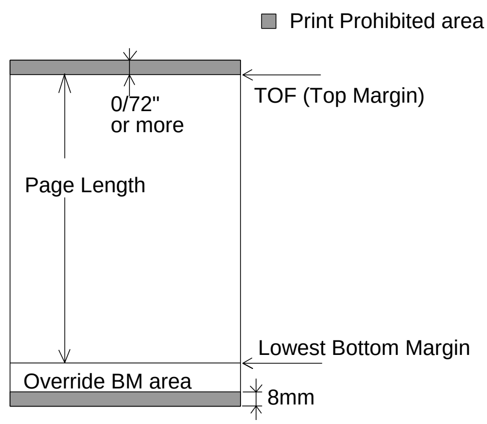


Selecting single sheet paper size

The paper size of single sheet paper is set. The designated page length is only valid when the single sheet mode or CSF mode is selected. The relationships of the paper sizes with the number of printed columns (at 10 cpi) are described in the table below.

```
4 PAGE SINGLE

PAGE: CODE         ...................  Default page size is A4 portrait.
PAGE: B5 PORT      ...................  "PORT" denotes portrait.
PAGE: B5 LAND      ...................  "LAND" denotes landscape.
PAGE: A4 PORT
PAGE: A4 LAND
PAGE: B4 PORT
PAGE: B4 LAND
PG: LETTER PORT
PG: LETTER LAND
PAGE:LEGAL PORT
PAGE:LEGAL LAND
PAGE: A3 PORT
PAGE: A3 LAND
```



Note: A3 landscape can not be used in CSF.

Paper Size	Number of Columns (char./line)	Page Length (mm)	Number of Lines (line/page)
B5 Portrait	68	232	54
B5 Landscape	98	157	37
A4 Portrait	80	272	64
A4 Landscape	114	185	43
B4 Portrait	98	339	80
B4 Landscape	136	232	54
Letter Portrait	82	255	60
Letter Landscape	108	191	45
Legal Portrait	82	330.1	78
Legal Landscape	136	191	45
A3 Portrait	114	395	93
A3 Landscape	136	272	64

CONDITIONS
- Character Pitch: 10 CPI
- Line Feed Pitch: 6 LPI
- Page Length : = Paper form length - 6mm (top margin) - 17mm (bottom margin) - 2mm (tolerance)
- Right and Left Margin: correspond to the scale on the paper bail. (The unit is the number of characters).

Printing multipart paper

The multipart mode increases the print intensity on multipart forms by striking the same character twice or more in several passes of the print head.

5 MULTIPART

COPY: NORMAL		
COPY: DARK1	....	Print twice on the same character.
COPY: DARK2	....	Print three times on the same character.
COPY: DARK3	....	Print four times on the same character.

Loading user setup options

Loads one of three user designed setup options to the current active memory. This will replace and erase setup contents in the current memory. The printer has three setup storage areas that can store different setups. If you need to save the current setups before replacement, it is necessary to select the “45 SAVE SETUP” item in the extended setup options.

Note: When this function is executed, the printer will be initialized.

6 SELECT SETUP

SETUP: MEM1
SETUP: MEM2
SETUP: MEM3

Printing list of option settings

This function prints the list of the current setups or/and all the setups of three memory areas. Press the **ENTER** key to start the selected item listing. This does not affect the current setting.

7 SETUP LISTING

LIST: CURRENT	....	Lists current setups.
LIST: ALL SETUP	....	Lists all setup listings including user memorys.

5. Extended setup options

About extended setup options

The extended setup options contain various setup options which are used less frequently than the main setup options.

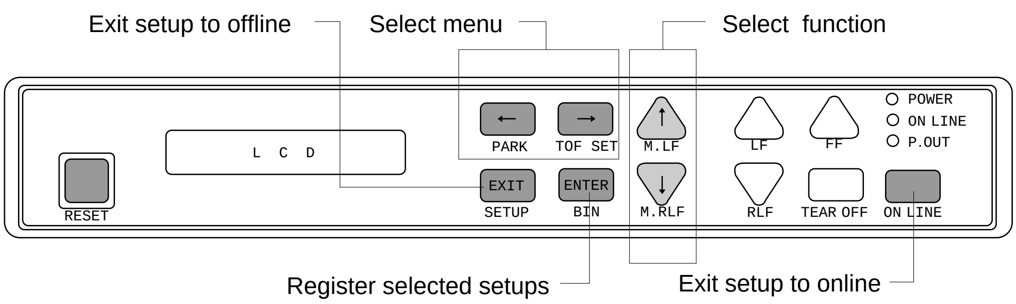
For the overview of the extended setup options, refer to Extended setup options summary.

❑ To set this option

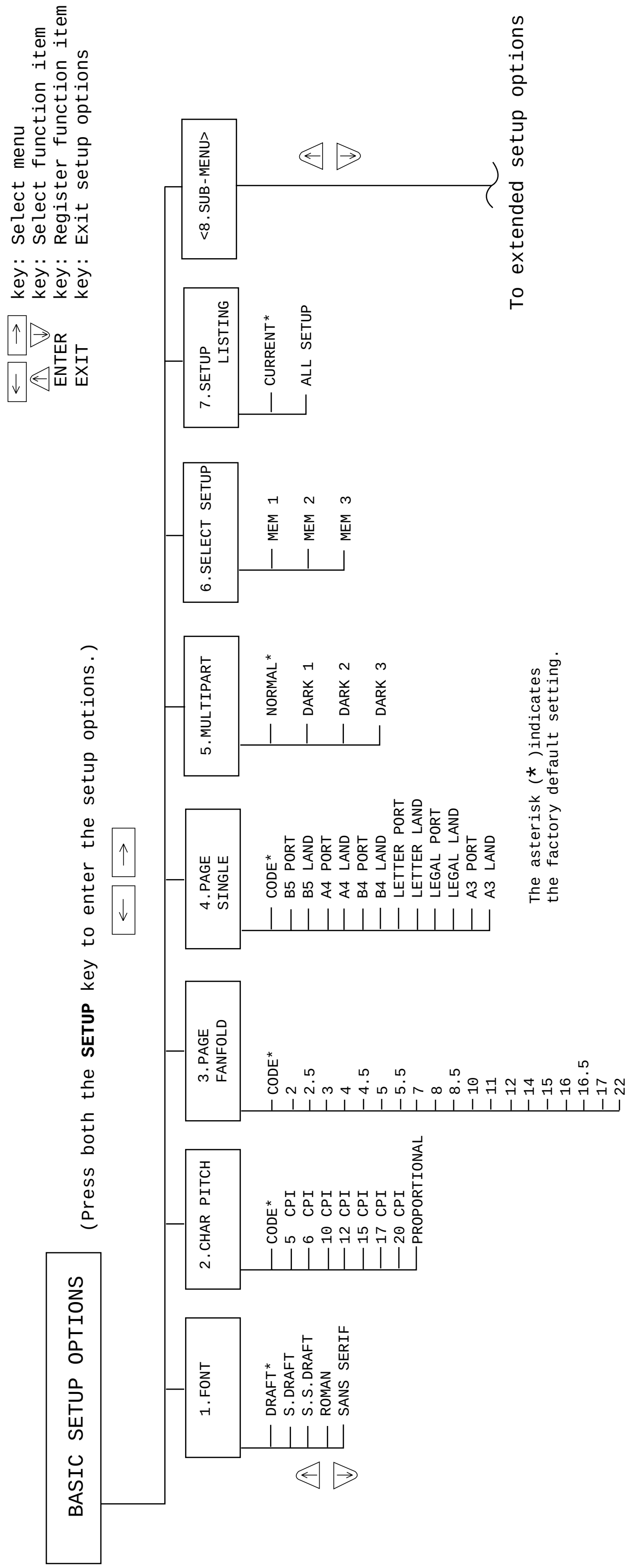
By pressing the Down Arrow (↓) key at the last menu item in the main setup options, the printer enters the extended setup options, where various functions.

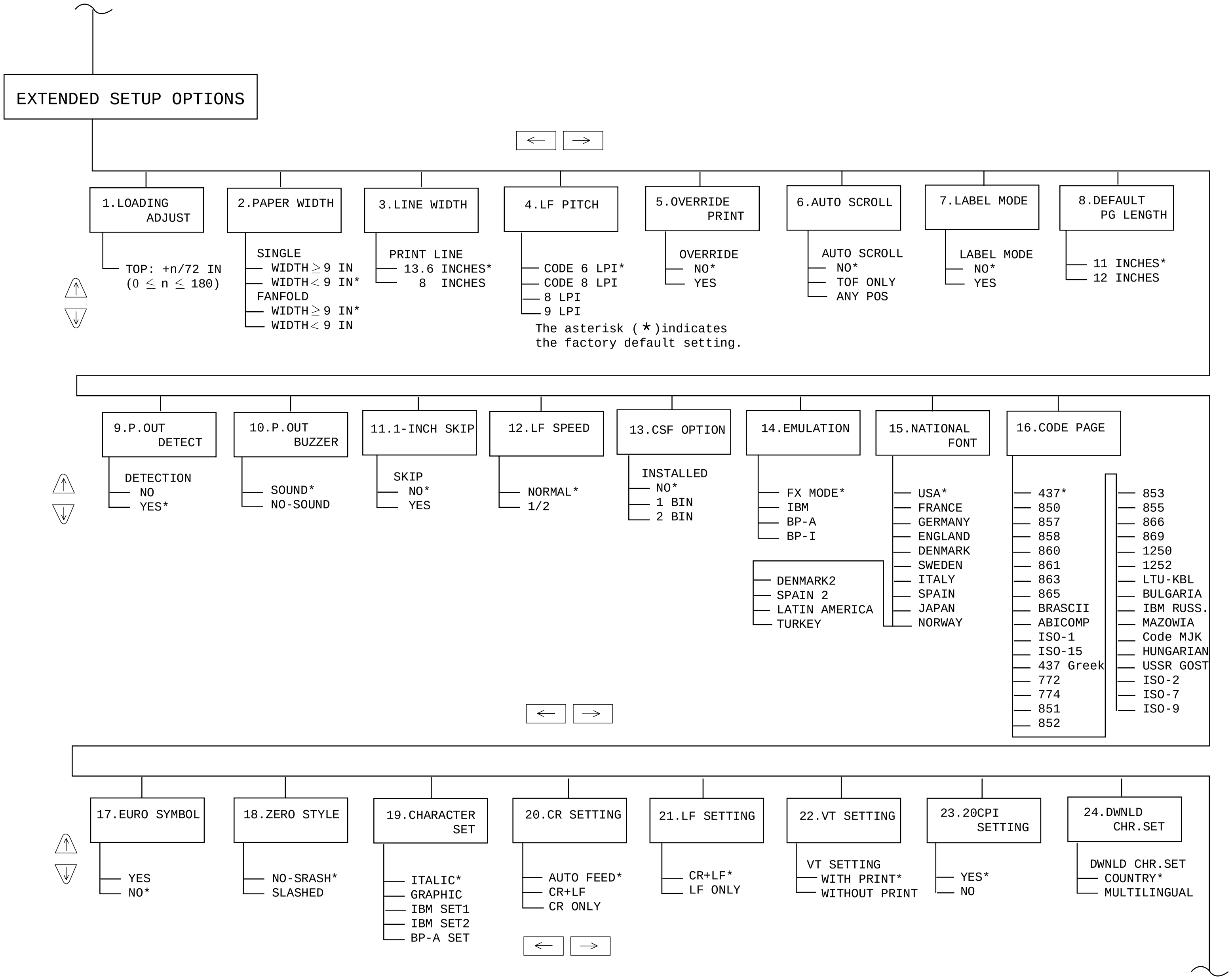
```
8 <SUB-MENU>
```

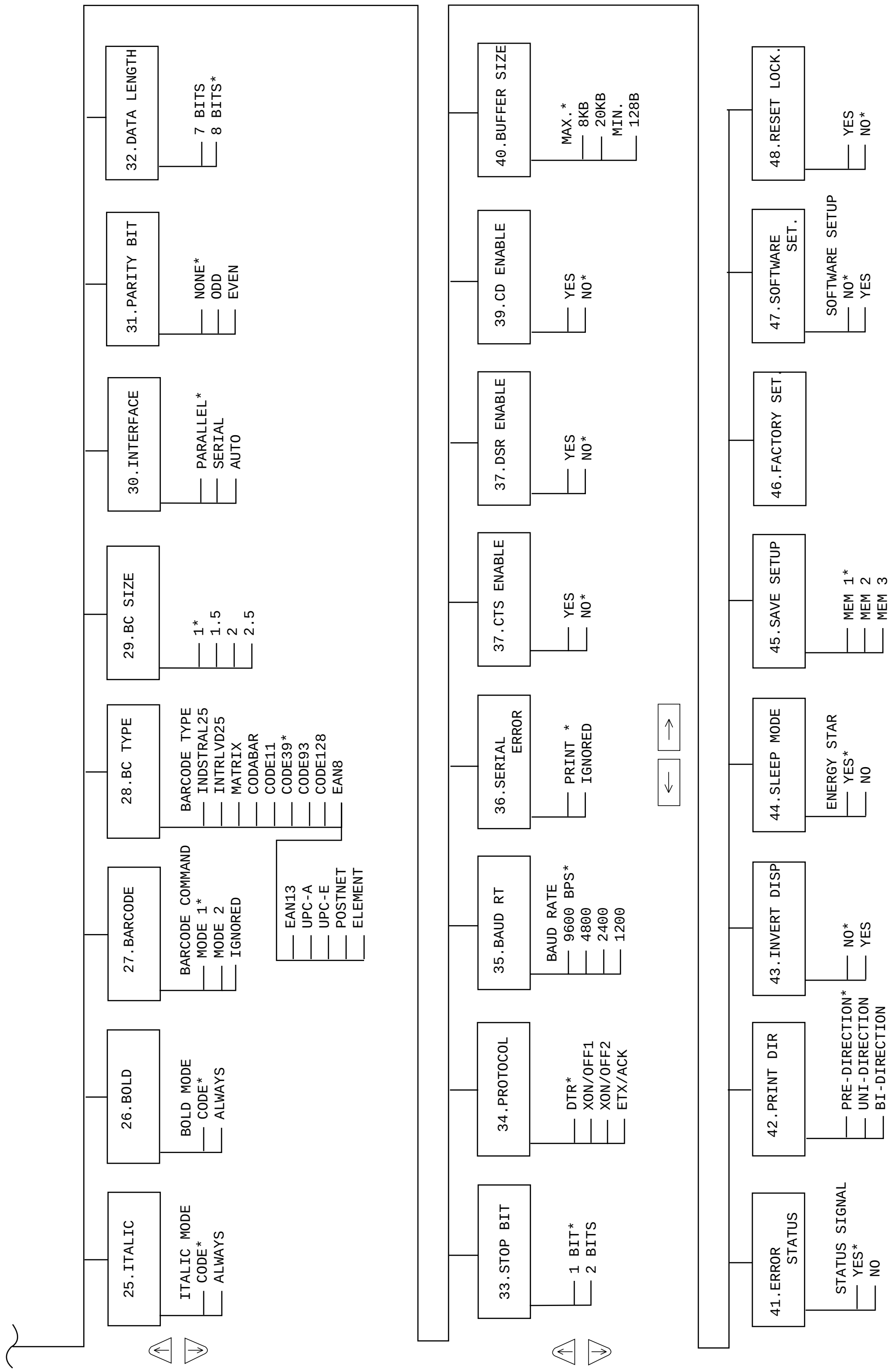
The keys and operation method in the extended setup options are the same as those in the basic setup options. If a modification is made in the setup options, store it in one of user defined memory areas described on page 51.



Setup options summary




EXTENDED SETUP OPTIONS
1.LOADING ADJUST
TOP: +n/72 IN
(0 ≤ n ≤ 180)
2.PAPER WIDTH
SINGLE
WIDTH ≥ 9 IN
WIDTH < 9 IN*
FANFOLD
WIDTH ≥ 9 IN*
WIDTH < 9 IN
3.LINE WIDTH
PRINT LINE
13.6 INCHES*
8 INCHES
4.LF PITCH
CODE 6 LPI*
CODE 8 LPI
8 LPI
9 LPI
The asterisk (*)indicates
the factory default setting.
5.OVERRIDE PRINT
OVERRIDE
NO*
YES
6.AUTO SCROLL
AUTO SCROLL
NO*
TOF ONLY
ANY POS
7.LABEL MODE
LABEL MODE
NO*
YES
8.DEFAULT PG LENGTH
11 INCHES*
12 INCHES
9.P.OUT DETECT
DETECTION
NO
YES*
10.P.OUT BUZZER
SOUND*
NO-SOUND
11.1-INCH SKIP
SKIP
NO*
YES
12.LF SPEED
NORMAL*
1/2
13.CSF OPTION
INSTALLED
NO*
1 BIN
2 BIN
14.EMULATION
FX MODE*
IBM
BP-A
BP-I
15.NATIONAL FONT
USA*
FRANCE
GERMANY
ENGLAND
DENMARK
SWEDEN
ITALY
SPAIN
JAPAN
NORWAY
DENMARK2
SPAIN 2
LATIN AMERICA
TURKEY
16.CODE PAGE
437*
850
857
858
860
861
863
865
BRASCII
ABICOMP
ISO-1
ISO-15
437 Greek
772
774
851
852
853
855
866
869
1250
1252
LTU-KBL
BULGARIA
IBM RUSS.
MAZOWIA
Code MJK
HUNGARIAN
USSR GOST
ISO-2
ISO-7
ISO-9
17.EURO SYMBOL
YES
NO*
18.ZERO STYLE
NO-SRASH*
SLASHED
19.CHARACTER SET
ITALIC*
GRAPHIC
IBM SET1
IBM SET2
BP-A SET
20.CR SETTING
AUTO FEED*
CR+LF
CR ONLY
21.LF SETTING
CR+LF*
LF ONLY
22.VT SETTING
VT SETTING
WITH PRINT*
WITHOUT PRINT
23.20CPI SETTING
YES*
NO
24.DWNLD CHR.SET
DWNLD CHR.SET
COUNTRY*
MULTILINGUAL

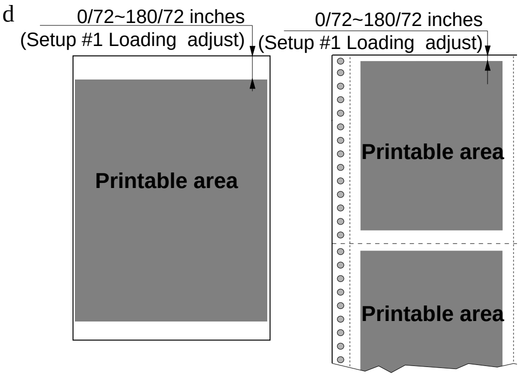

25.ITALIC
ITALIC MODE
CODE*
ALWAYS
26.BOLD
BOLD MODE
CODE*
ALWAYS
27.BARCODE
BARCODE COMMAND
MODE 1*
MODE 2
IGNORED
28.BC TYPE
BARCODE TYPE
INDSTRAL25
INTRLVD25
MATRIX
CODABAR
CODE11
CODE39*
CODE93
CODE128
EAN8
EAN13
UPC-A
UPC-E
POSTNET
ELEMENT
29.BC SIZE
1*
1.5
2
2.5
30.INTERFACE
PARALLEL*
SERIAL
AUTO
31.PARITY BIT
NONE*
ODD
EVEN
32.DATA LENGTH
7 BITS
8 BITS*
33.STOP BIT
1 BIT*
2 BITS
34.PROTOCOL
DTR*
XON/OFF1
XON/OFF2
ETX/ACK
35.BAUD RT
BAUD RATE
9600 BPS*
4800
2400
1200
36.SERIAL ERROR
PRINT *
IGNORED
37.CTS ENABLE
YES
NO*
37.DSR ENABLE
YES
NO*
39.CD ENABLE
YES
NO*
40.BUFFER SIZE
MAX.*
8KB
20KB
MIN.
128B
41.ERROR STATUS
STATUS SIGNAL
YES*
NO
42.PRINT DIR
PRE-DIRECTION*
UNI-DIRECTION
BI-DIRECTION
43.INVERT DISP
NO*
YES
44.SLEEP MODE
ENERGY STAR
YES*
NO
45.SAVE SETUP
MEM 1*
MEM 2
MEM 3
46.FACTORY SET.
47.SOFTWARE SET.
SOFTWARE SETUP
NO*
YES
48.RESET LOCK.
YES
NO*

Setting top of form position

The top margin can be set using this function, anywhere from a minimum of 0/72 inch (0mm) to a maximum of 180/72 inches (64mm) by increments of 1/72 inch.
Press the Up or Down arrow keys to increase or decrease the top margin setting, respectively.
Press the ENTER key to select the desired setting.

```
1 LOADING ADJST
```

```
 TOP:  + 0/72IN
 TOP:  +nnn/72IN
 TOP:  +180/72IN
```



Paper width

This function sets the paper width to be used in the printer. Depending on the paper width the print head will shift to the one half of the print width selected in this function to properly hold the paper in place, and to eliminate the possibillity of paper jams during loading.

```
2 PAPER WIDTH
```

SINGLE: ≥9 IN		
SINGLE: <9 IN	....	Default setting for a cut sheet paper
FANFOLD: ≥9 IN	....	Default setting for fanfold paper
FANFOLD: <9 IN		

Setting maximum print line length

This function sets the maximum printable length of a line of text. This function clears the data in the print buffer.

Note: Be sure to set the line width to 8 inches when using the paper of its width less than 8 inches. Otherwise, printing directly on the platen may cause an irregular printout or paper skew.

```
3 LINE WIDTH
```

```
WIDTH:13.6 INCH
WIDTH:  8  INCH
```

Line feed spacing

One of the line feed spacing options from either 6, 8, or 9 line per inch (LPI) is selected. When CODE is selected, the line feed spacing can be changed by a software command. When no line spacing is set in the software command, this value (6 or 8 LPI) is used as a linefeed.

4 LF PITCH

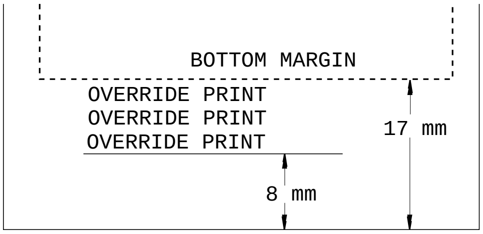
LF: CODE 6 LPI
LF: CODE 8 LPI
LF: 8 LPI
LF: 9 LPI

Override bottom margin

This function serves to reduce the bottom margin.
In the standard designation, the bottom margin is set to 17 mm from the bottom edge of the paper. With this function, data can be printed up to 8mm from the bottom edge of the page. However, in this case, print quality is not assured due to the restriction of the printer mechanism.

5 OVERRIDE PRINT

OVERRIDE: NO
OVERRIDE: YES



Autoscroll mode

The Autoscroll function automatically advances the paper to the tear off position when no data exists in the communication buffer and no new data is received for a period of 1 second.

This feature is very beneficial when it is necessary to print a single invoice, and tear it off immediately following printing.

In the case of "TOF ONLY" : Auto scroll is performed only when the present position, after the printing, is at TOF.
In the case of "ANY POS" : Autoscroll is performed at any position after the printing if the perforation is between the paper cutter and the print head.

Note: Autoscroll becomes invalid when the label protect mode is set active.

6 AUTO SCROLL

SCROLL:NO
SCROLL:TOF ONLY
SCROLL:ANY POS

Label mode

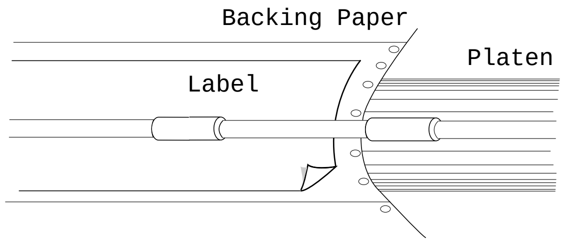
(valid only in fanfold setting)

Label mode is designed to prevent continuous forms labels from being peeled from the backing sheet and becoming jammed in the printer.

7 LABEL MODE

LABEL MODE: NO	....	Set label protect mode off.
LABEL MODE: YES	....	Set label protect mode on.

When the top edge of the label is positioned at the top of the platen for more than 10 seconds, the label is automatically repositioned away from the platen. When data is received by the printer, the labels are automatically fed to the original position before printing begins.



Set default page length

This function selects a default page length of either 11 or 12 inches at the time of printer initialization. This selection is only valid when CODE is selected as the PAGE LENGTH setting in the main setup options.

```
8 DFLT PG LENGTH
```

PAGE LNGTH:11	....	Page Length is 11 inches.
PAGE LNGTH:12	....	Page Length is 12 inches.

Disable paper out detection

When the paper empty detection function is disabled, the printer will not stop printing when a paper empty error is detected and a software command with respect to the paper empty detection function is not accepted.

```
9 P.OUT DETECT
```

DETECTION: YES	....	Set paper empty detection on.
DETECTION: NO	....	Set paper empty detection off.

Disable paper out buzzer

When SOUND is set and the paper empty condition is detected, the alarm sounds for one second. When the NO-SOUND is set, the alarm does not sound. However, when P.OUT DETECT is disabled, regardless of the alarm setting, the alarm does not sound.

```
10 P.OUT BUZZER
```

BUZZER: SOUND	....	Set paper empty detection alarm on.
BUZZER:NO-SOUND	....	Set paper empty detection alarm off.

Skip over perforation

This function automatically leaves one inch of unprinted lines at the end of the page and linefeeds the paper to the next top of form. If the page length is smaller than 5 inches, this function is ignored. The skip perforation software command overrides this function.

```
11 1-INCH SKIP
```

1-INCH SKIP:NO	....	Defaults to non-skip over perforation.
1-INCH SKIP:YES		

Line Feed Speed

This function specifies the line feed speed. The 1/2 LF speed feeds paper more stably. It is useful for thick paper, labeled sheets and multipart paper in continuous printing.

```
12 LF SPEED
```

```
LF SPEED:NORMAL
LF SPEED:1/2
```

Set CSF (cut sheed feeder) type

A function for defining the CSF configuration. The CSF type, single tray or double tray canbe set when the CSF is installed. See "*Options and expendables*" on page 4.
When either single or double CSF is selected, the paper tray (bin 1 for single CSF and bin 1 and 2 for double CSF) can be selected by the BIN key on the front control panel.

```
13 CSF OPTION
```

INSTALLED:NO	....	No CSF installed
INSTALLED:1 BIN	....	Single CSF installed
INSTALLED:2 BIN	....	Double CSF installed

Emulation

The desired emulation mode of the printer can be selected using this function. When this function is executed, the printer is initialized.

```
14 EMULATION
```

Setting		Description
EML: FX MODE	....	Epson FX-1050 compatible.
EML: IBM MODE	....	IBM Proprinter III XL compatible.
EML: BP-A MODE	....	Seikosha BP-5460 Standard emulation.
EML: BP-I MODE	....	Seikosha BP-5460 IBM emulation.

National font style

One of the following 14 national fonts can be selected.
When IBM Character Set 2 is selected, the Denmark, Denmark2, and Norway fonts take the same characters as the U.S.A. font except that their codes 9Bh changes from "¢" to "ø", and 9Dh from "¥" to "Ø".

```
15 NATIONAL FONT
```

15 NATIONAL FONT	ASCII HEXADECIMAL											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A.	#	$	@	[	\	]	^	`	{	¦	}	~
FRANCE	#	$	à	°	ç	§	^	`	é	ù	è	¨
GERMANY	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
ENGLAND	£	$	@	[	\	]	^	`	{	¦	}	~
DENMARK	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
ITALY	#	$	@	°	\	é	^	ù	à	ò	è	ì
SPAIN	₧	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
JAPAN	#	$	@	[	¥	]	^	`	{	¦	}	~
NORWAY	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
DENMARK	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
SPAIN 2	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
LATN AMERICA	#	$	á	¡	Ñ	¿	é	Ü	í	ñ	ó	ú
TURKEY	#	ı	İ	Ç	Ö	Ş	Ü	ğ	ç	ö	ş	ü

Code page

The default code page can be selected using this function. Refer to the code page table in Appendix C.

16 CODE PAGE

C.P.: 437	....	USA
C.P.: 850	....	Multilingual.
C.P.: 857	....	Turkish
C.P.: 858	....	Multilingual(Euro).
C.P.: 860	....	Portuguese
C.P.: 861	....	Icelandic
C.P.: 863	....	Canadian-French
C.P.: 865	....	Norwegian
C.P.: BRASCII	....	Brazilian-Portuguese
C.P.: ABICOMP	....	Brazilian-Portuguese
C.P.: ISO-1	....	ISO 8859-1
C.P.: ISO-15	....	ISO 8859-15
C.P.: 437 Gr	....	Greek
C.P.: 772	....	Lithuanian
C.P.: 774	....	Lithuanian
C.P.: 851	....	Greek
C.P.: 852	....	East Europe
C.P.: 853	....	Turkey
C.P.: 855	....	Cyrillic
C.P.: 866	....	Russian
C.P.: 869	....	Greek
C.P.: 1250	....	Latin 2
C.P.: 1252	....	Latin 1
C.P.: LTU-KBL	....	Lithuanian-KBL
C.P.: BULGA.	....	Bulgarian
C.P.: IBM RUSS.	....	IBM Russian
C.P.: MAZOWIA	....	MAZOWIA(Polish)
C.P.: MJK	....	Code MJK(CSFR)
C.P.: HUNGARIAN	....	Hungarian
C.P.: USSR GOST	....	USSR GOST (Russian)
C.P.: ISO-2	....	ISO 8859-2
C.P.: ISO-7	....	ISO 8859-7
C.P.: ISO-9	....	ISO 8859-9

EURO symbol (ISO 8859-1)

This function specifies the EURO symbol "€" at the code A4H in the character set ISO 8859-1.

17 EURO SYMB

EURO SYMBOL: YES	....	The EURO symbol "€"is printed at the code A4H.
EURO SYMBOL: NO	....	"¤" is printed at the code A4H.

Slashed zero

The zero style is selected as either "0" (no-slash) or "Ø" (slashed).

18 ZERO STYLE

ZERO: NO-SLASH	"0" (no-slash) is selected.
ZERO: SLASHED	"Ø" (slashed) is selected.

Character table

One of character sets is selected. The character set availability depends on the emulation mode selected as shown in each selection.

19 CHARACTER SET

CH.SET: ITALIC CH.SET: GRAPHIC	FX mode only See italic and graphic tables on pages 91 and 92.
CH.SET:IBM SET1 CH.SET:IBM SET2	IBM and BP-I mode only See IBM character set 1 and 2 tables on page 93.
CH.SET:BP-A SET	BP-A mode only See BP-A character table on page 95.

Carriage return (CR)

A carriage return (ASCII code 0Dh or 13) causes data in the buffer to be printed and the carriage to be moved to the next logical print position. The options shown below can be selected when issuing a carriage return (CR code).
Autofeed is effective for the system using parallel interface and AUTO FEED signal to control the carriage return with or without a line feed. The autofeed signal must be low to add a line feed to every CR code when the printer is initialized. Refer to the specification of your host system.

20 CR SETTING

CR: AUTOFEED	Autofeed signal enabled
CR: CR+LF	Carriage return with a line feed
CR: CR ONLY	Carriage return without a line feed

Line feed (LF)

A function for executing the carriage return operation when receiving the line feed command (LF code) is selected or deselected.

```
21 LF SETTING
```

LF : LF ONLY	....	Line feed without a carriage return
LF : CR+LF	....	Line feed with a carriage return

Set vertical tabs (VT) in BP-A/I mode

This function sets the vertical tab command code (0Bh) in BP-A or BP-I mode either to move to next vertical tab with or without printing buffer content.

```
22 VT SETTING
```

VT: WITH PRINT	....	Move to a next vertical tab after printing.
VT:WITHOUT PRNT	....	Move to a next vertical tab without printing.

IBM 20 cpi character spacing

This function selects a condensed elite character (20 cpi) to be printed in either 20 cpi as in the latest IBM emulation or 12 cpi (normal elite character spacing which is used in the IBM emulation, Proprinter II or older).

```
23 20CPI SETTING
```

```
IBM 20CPI: YES
IBM 20CPI: NO
```

IBM download character table

This function selects between the country and multilingual character sets to be used in the download area. See the character sets in appendix.

```
24 DWNLD CHR ST
```

```
COUNTRY SET
MULTILINGUAL
```

Set italic character style

This function simply selects all print output to be in italic character style.

```
25 ITALIC
```

ITALIC: CODE	....	Defaults to the current set command code
ITALIC: ALWAYS	....	Always printed in italic character style

Set bold character style

This function simply selects all print output to be in bold character style.

```
26 BOLD
```

BOLD : CODE	....	Defaults to the current set command code
BOLD : ALWAYS	....	Always printed in bold character style

Enable barcode command

This function enables the printer to accept the bar cord command and to print the bar cord accordingly.

```
27 BARCODE
```

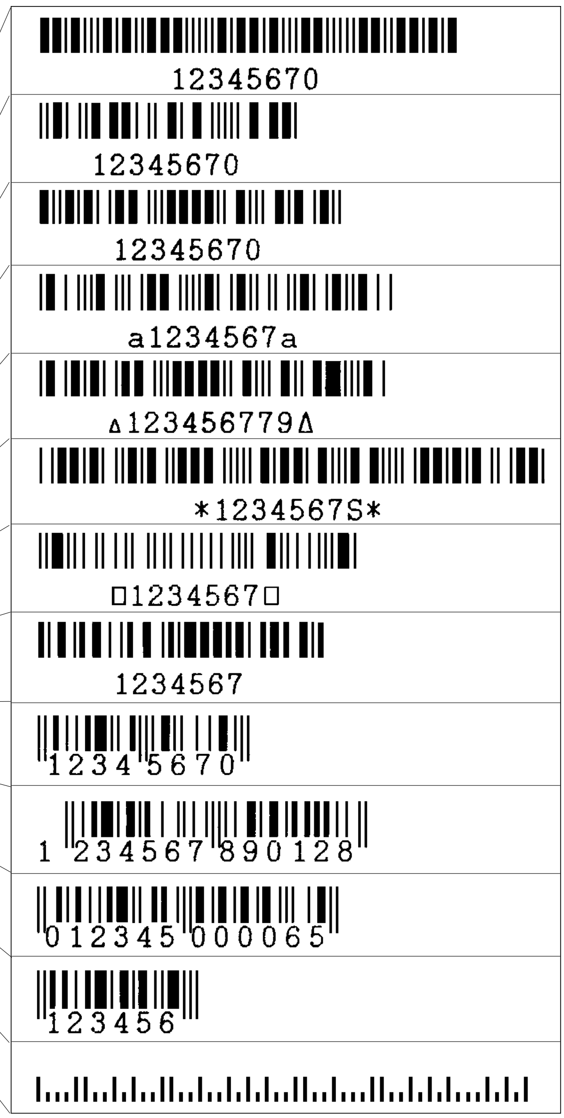
BC : MODE 1	....	ESC SO and ESC SI can not be used for.
BC : MODE 2	....	ALL control command are valide.
BC : IGNORED	....	Bar Code is invalid.

Set barcode type

This function selects a type of bar code. Bar code type **element** enables a user to print bar code by varying width of narrow bar, wide bar, narrow space, wide bar, or intercharacter gap. See Appendix B, "***Bar code control code***" for details.

```
28 BC TYPE
```

```
TYPE: INDST25
TYPE: INTRL25
TYPE: MTRIX
TYPE: CODABA
TYPE: CODE11
TYPE: CODE39
TYPE: CODE93
TYPE: C128
TYPE: EAN-8
TYPE: EAN-13
TYPE: UPC-A
TYPE: UPC-E
TYPE: POSTNET
TYPE: ELEMENT
```



Bar code size

This function specifies the default bar code size.

```
29 BARCODE SIZE
```

SIZE : 1
SIZE : 1.5
SIZE : 2
SIZE : 2.5

The tables below show bar code sizes and attributes.

SIZE	1	1.5	2	2.5
NARROW BAR	2/120inch	3/120inch	4/120inch	5/120inch
WIDE BAR	6/120inch	9/120inch	12/120inch	15/120inch
NARROW SPACE	2/120inch	3/120inch	4/120inch	5/120inch
WIDE SPACE	6/120inch	9/120inch	12/120inch	15/120inch
INTER CHARA.GAP	2/120inch	3/120inch	4/120inch	5/120inch
BAR HEIGHT	8/12inch	8/12inch	12/12inch	12/12inch

HRI PRINT	BELOW
HRI FONT	Current
CHECK CHARACTERS	Added
PRINT DENSITY	1/120 inch

Interface type

The parallel interface or the serial interface is selected. When this function is executed, the printer is initialized. See "***Connecting the computer***" on page 12 for correct selection and connection of the interface cable.

30 INTERFACE

I/F: PARALLEL	
I/F: SERIAL	
I/F: AUTO	.... Parallel and serial interface are switched automatically.

Parity bit (serial interface)

This function selects the appropriate parity bit in the transmission data frame.

31 PARITY BIT

PARITY: NONE
PARITY: ODD
PARITY: EVEN

Data length (serial interface)

This function selects the appropriate data length.

32 DATA LENGTH

LENGTH: 8 BITS
LENGTH: 7 BITS

Stop bit (serial interface)

This function selects the appropriate number of stop bits.

33 STOP BIT

STOP BIT: 1 BIT
STOP BIT: 2 BIT

Communication protocol (serial interface)

This function selects the appropriate communications protocol. Refer to the specification of your host system for selecting proper communication protocol.

```
34 PROTOCOL
```

DTR	....	Busy/Ready protocol
XON/OFF1	....	Set XON/XOFF 1.
XON/OFF2	....	Set XON/XOFF 2.
ETX/ACK		

Note: The XON/XOFF 1 differs from the XON/XOFF 2 in that the XON code (11h) is sent from the printer at power-on in the XON/XOFF 1 protocol.

Communication speed (serial interface)

This function selects the appropriate baud rate for the data transmission speed.

```
35 BAUD RT
```

```
SPEED: 9600 BPS
SPEED: 4800 BPS
SPEED: 2400 BPS
SPEED: 1200 BPS
```

Serial error check (serial interface)

This function selects the printer's response to a serial data transmission error. The serial data transmission error includes a parity error, framing error, and over-run error. If "PRINT" is enabled, the data in error is printed as an asterisk(*). If "IGNORED" is enabled, the data in error is discarded.

```
36 SERIAL ERROR
```

```
S.ERROR: PRINT
S.ERROR:IGNORED
```

CTS signal (serial interface)

This function accepts or ignores the CTS (Clear to Send) signal from the host.

37 CTS ENABLE

CTS: NO	.... Ignores the CTS signal
CTS: YES	.... Functions according to the CTS signal from the host

DSR signal (serial interface)

This function accepts or ignores the DSR (Data Set Ready) signal from the host.

38 DSR ENABLE

DSR: NO	.... Ignores the DSR signal
DSR: YES	.... Functions according to the DSR signal from the host

CD signal (serial interface)

This function accepts or ignores the CD (Carrier Detect) signal from the host.

39 CD ENABLE

CD: NO	.... Ignores the CD signal
CD: YES	.... Functions according to the CD signal from the host

Communication buffer size

This function selects the maximum size of the input buffer. An appropriate selection is displayed according to another setup options like the emulation type of either IBM or FX mode.
When the selection of this function is completed, the printer is intialized.
The buffer size affects the signal protocol in serial data communication. In these protocols the printer's busy/ready state changes according to the data remaining values in the buffer.

	Ready to busy (CIN)	Busy to ready (CRN)
B.SIZE:20KBor8KB	1k bytes	2k bytes
B.SIZE:128B	32 bytes	64 bytes

```
40 BUFFER SIZE
```

B.SIZE:20KB	....	FX, BP-A/I mode
B.SIZE:8KB	....	IBM mode
B.SIZE:128B	....	Minimum input buffer size in any mode

Setting of whether ERROR/PE signals are output or not.

(1) Setting is made whether or not ERROR and PE signals for the parallel interface are output.
(2) When "NO" is selected, ERROR signal remains HIGH, and PE signal remains LOW, in any situation.

```
41 ERROR STATUS
```

```
STATUS SIG.:YES
STATUS SIG.:NO
```

Print direction

Selects either pre-directional printing, bi-directional printing, or uni-directional printing.

```
42 PRINT DIR
```

PRE-DIRECTION	....	Default print direction
UNI-DIRECTION	....	Ignores the software command (ESC U).
BI-DIRECTION		

- Pre-directional printing:
  Whenever a double pass of the print head is required, the direction of the second pass is the same as that of the first pass. This logic-seeking, unidirectional printing can be used, therefore, in modes such as double strike and double height printing. The logic seeking capability is executed before the first pass of the print head. The printing direction of all paths is the same as that of the first pass.

- Bi-directional printing:
  Successive passes of the print head alternate between the left-right and right-left direction.

- Uni-directional printing:
  Data is always printed in a single direction from the left to the right. This selection on the front panel will ignore a software print direction command.
  When unidirectional printing is set, a software command with respect to the printing direction is not accepted. When pre-directional printing or bidirectional printing is set, a software bidirectional command is executed.

Invert LCD display

This function sets up-side down text display in the LCD. Use with the reverse control panel sheet. (See page 7)

```
43 INVERT DISP
```

```
INVERT:  NO
INVERT:  YES
```

Setting of ENERGY STAR

(1) Set the power conservation standby mode.

(2) When this mode is valid, if the HC and (or) LF motors stop, the current to HC, LF, FAN, and the ribbon motor is interrupted 14 minutes later then the standby power conservation mode is engaged. Switching to the normal mode is effected when any mechanical action is required.

```
44 SLEEP MODE
```

```
SLEEP MODE:YES
SLEEP MODE:NO
```

Saving user setup options

This function saves the current setup into one of three memory areas.
Press the **ENTER** key to store the current setup in the desired memory area. This does not affect the current setting.

```
45 SAVE SETUP
```

```
SETUP: MEM1
SETUP: MEM2
SETUP: MEM3
```

Restore factory default setups

This function selects to initialize the printer to the factory setting. Press the **ENTER** key to restore the factory setting in all setup options, Otherwise; press any other key to cancel this option. "SETUP : COMPLETED" is displayed at the completion of the execution.

```
46 FACTORY ST
```

```
PRESS ENTER SW
```

.... "SETUP: COMPLETED" is displayed immediately after pressing the **ENTER** key.

Option Menu	Factory Default
<Basic options>	
1. FONT	DRAFT
2. CHAR PITCH	CODE (10 CPI)
3. PAGE (FANFOLD)	CODE (11")
4. PAGE (SINGLE)	CODE (A4 PORT)
5. MULTIPART	NORMAL
6. SELECT SETUP	
7. SETUP LISTING	CURRENT
<Extended options>	
1. LOADING ADJUST	17/72"
2. PAPER WIDTH	SINGLE: <9" FANFOLD: ≥9"
3. LINE WIDTH	13.6"
4. LF PITCH	CODE (6 LPI)
5. OVERRIDE PRINT	NO
6. AUTO SCROLL	NO
7. LABEL MODE	NO
8. DEFAULT PG LNG	11"
9. P.OUT DETECT	YES
10. P.OUT BUZZER	YES
11. 1-INCH SKIP	NO
12. LF SPEED	NORMAL
13. CSF OPTION	NO
14. EMULATION	FX MODE
15. NATIONAL FONT	USA
16. CODE PAGE	437
17. EURO SYMBOL	NO
18. ZERO STYLE	NO-SLASH
19. CHARACTER SET	ITALIC
20. CR SETTING	AUTO FEED
21. LF SETTING	CR+LF
22. VT SETTING	WITH PRINT
23. 20CPI SETTING	YES
24. DWNLD CHR.SET	COUNTRY
25. ITALIC	CODE
26. BOLD	CODE
27. BARCODE	MODE1
29. BC SIZE	1
30. INTERFACE	PARALLEL
31. PARITY BIT	NON
32. DATA LENGTH	8 BITS
33. STOP BIT	1 BIT
34. PROTOCOL	DTR
35. BAUD RT	9600 BPS
36. SERIAL ERROR	PRINT
37. CTS ENABLE	NO
38. DSR ENABLE	NO
39. CD ENABLE	NO
40. BUFFER SIZE	MAXIMUM
41. ERROR STATUS	YES
42. PRINT DIR	PREDIRECTION
43. INVERT DISP	NO
44. SLEEP MODE	YES
45. SAVE SETUP	
46. FACTORY SET	
47. SOFTWARE SET.	NO
48. RESET LOCK	NO

Software controlled setup

This function enables or disables a control on the setup options from the specially provided software command. See "*Printer setup command codes*" section in Appendix B.

47 SOFTWARE SET

SOFTWARE: NO
SOFTWARE: YES

Lock the RESET key

This function locks up the RESET key during the online mode in order to avoid an accidental reset during printing.

48 RESET LOCK

LOCK: NO
LOCK: YES

6. Selection of printer driver

About printer driver

Printer Driver is a section of your software that automatically translates instructions from the software to your printer.

For example, when using some application software, if you want to **boldface** or underline a word, the printer driver automatically translates your specific **boldface** or underline instruction on your application software to printer control command.

Different printers use different control codes for designating print styles. Therefore, it is important that when you install your software, you select the appropriate printer driver designed for your printer.

When WINDOWS 3.1, WINDOWS NT 4.0, or WINDOWS 95, 98 is used, please install the Printer Driver in the attached Floppy Disk to WINDOWS.

When this printer in the MS-DOS or other environment, such as UNIX or OS/2, proceed as follows.

Printer driver selection

Select a suitable printer driver from the list of supported printers. This would include either the **Epson FX-1050** or **IBM Proprinter III XL**. Each of these printer drivers should allow you to access many of the features on your printer.

If this printer is not listed, look for the following printer drivers. While this should allow you to print your document with your printer, it probably will not allow you to access the many features of the printer. A few of the choice you may see are given below in order of preferences.

FX or IBM mode:

SEIKO Precision	Epson	IBM
(15" printer driver)	FX-1050	Proprinter III XL
	FX-286e	Proprinter II XL
	EX-1000	Proprinter XL
	FX-286	
	FX-185	
	FX-100+	
	FX-100	
	FX, LX, MX	
(10" printer driver)	FX-850	Proprinter III
	FX-86e	Proprinter II
	EX-800	Proprinter
	FX-85	Graphics Printer

BP-A or BP-I mode:

SEIKO Precision	Epson	IBM
BP-5460	FX (BP-A)	Graphics Printer (BP-I)
BP-5420		

Note:
Set the emulation type in the extension setup options accordingly to the selection of printer driver. For example, Epson FX-1050 printer driver selection should set the emulation type to FX mode.

7. Troubleshooting

If an error occurs during printing, you will get several warnings. A buzzer sounds, P.OUT lamp blinks, and an error message appears in the display window of the front control panel.

❑ Error Messages

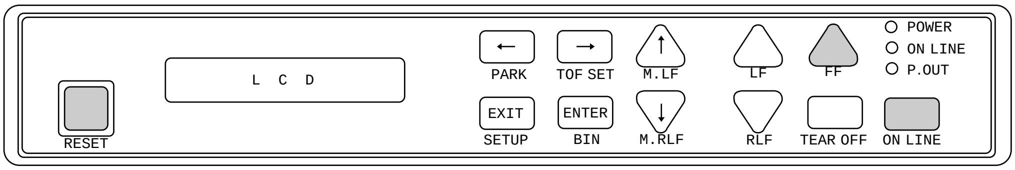
Error Message	*Cause and Solution*
CARRIAGE ERROR	The printer cannot detect the print head position. ◆ Turn off the printer immediately. After a brief wait, turn the printer on again.
RAM ERROR	Internal RAM does not function properly. ◆ Turn the printer off and back on again. If the error persists, consult your dealer.
EEPROM ERROR	Checksum error occurred in EEPROM IC chip. ◆ Reset the error status by the following procedure: Hold down the **PARK**, **TOF SET**, **M.LF**, and **LF** keys all together while turning on the power to the printer. If the error persists, consult your dealer. **WARNING**: All registered settings in the printer will be cleared, e.g. settings in setup options and in vertical alignment data. You will have to make re-adjustment (see page 61).
FAN ERROR	Abnormal fan operation is detected.
HEAD PROTECTION (ON LINE indicator blinks.)	Long continuous printing may overheat the print head. ◆ The printer stops temporarily and restarts automatically when the print head temperature lowers to a safe level.
PAPER ERROR (Buzzer sounds 3 times.)	Paper jam or improper paper operation occur. ◆ If paper parking is not completed, press the **PARK** key. Otherwise reload the paper.
PAPER OUT	Paper is not loaded in the printer. ◆ Load paper (pages 13 and 14).
COVER OPEN	One of the printer covers are open. ◆ Close the cover to restart the operation.
POWER DOWN!!	Abnormal current is detected. ◆ The printer is automatically turnoff. Stop using the printer, and contact the dealer.

❑ Problem guide

Problem	***Cause and Solution***
POWER lamp fails to light	◆ Power cord and power connection fail. ◆ Blown fuse in the printer.
Printer stops or slows down on printing	◆ Print head has overheated. Wait until it has cooled down.
P.OUT lamp lights incorrectly	◆ Paper detect sensor may be damaged. ◆ Sensor hole is clogged.
Poor quality printing or smudging of the paper	◆ Old or worn out ink ribbon needs to be replaced. ◆ Print head adjustment lever is not set correctly. ◆ Print head may need to be cleaned or replaced.
Some characters miss printing	◆ Ribbon cassette is not properly installed.
Incorrect character printed	◆ Host system control and data code may not match the printer's setup.
Paper not advancing	◆ Incorrect friction lever setting.
Fanfold paper slips	◆ Stack of fanfold paper behind the printer is placed crookedly. ◆ Friction lever is in the cut sheet setting.
Extra line feed	◆ The carriage return sub-menu selection is set incorrectly.
Paper jam	◆ Paper is curled. ◆ Move friction lever to the fanfold paper setting and carefully remove the jammed paper.
Paper Bail abnormal operation	◆ Electric Noise on the printer. Turn OFF the printer and wait until all the electric noises are discharged from the printer (one minute), and then turn it back ON again. Consult your dealer if the error persists.

❑ Input Hexadecimal Dump Mode

The Input hexadecimal dump capability of the printer enables monitoring of data as it is sent to the printer. Each Escape Sequence, Control Code, and ASCII character sent from the computer to the printer is output in a two-digit hexadecimal format. Such printing is initiated after 16 bytes of data have been transmitted to the printer. Hexadecimal values and their corresponding ASCII characters between the values 20h to 7Eh are printed on each line.



To run this mode in draft printing
Press the **FF** key while turning ON the printer or pressing the **RESET** key. Hold down the **FF** key until the LCD displays "HEXDUMP"

To run this mode in NLQ printing Press the FF and ONLINE keys simultaneously while turning ON the printer or pressing the **RESET** key. Hold down the **FF** and **ONLINE** keys until the LCD displays "HEXDUMP"

To terminate this mode
Press the **RESET** key or turn off the power.

Example

```
10 REM HEXADECIMAL DUMP LIST EXAMPLE
20 OPEN "LPT1:"AS #1
30 WIDTH #1,255
40 PRINT #1,"ABC";CHR$(13);CHR$(10);
50 PRINT #1,"123";CHR$(13);CHR$(10);
60 PRINT #1,"HENRY IS HANDSOME"
70 END
```

```
00000  41 42 43 0D 0A 31 32 33  0D 0A 48 45 4E 52 59 20   ABC..123..HENRY
00010  49 53 20 48 41 4E 44 53  4F 4D 45 0D                IS HANDSOME.
```

Note

ASCII characters are printed according to hexadecimal codes of the data. Codes other than 1Bh and 20h to 7Eh are printed as “.” (2Eh). For the code 1Bh, “E” is printed in draft mode and “${}^{E}S_{C}$” is printed in NLQ mode.

8. Maintenance

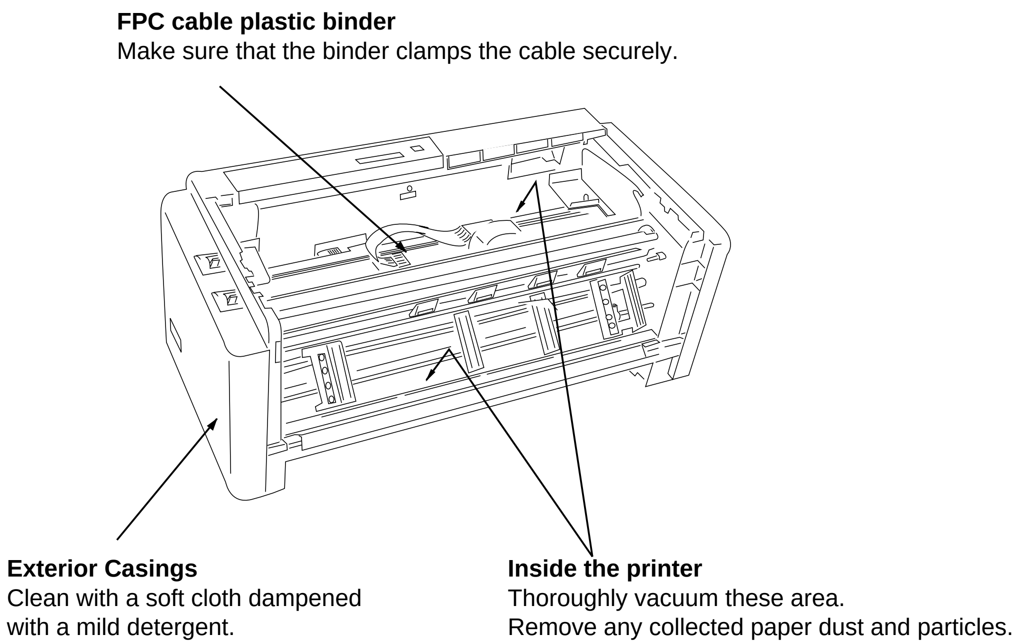
❑ Cleaning

Minimum periodical cleaning will ensure the maximum performance from your printer. Do not spill or splash a cleaning liquid inside the printer. Please refer to the "Printer cover removal" on page 59 to remove the covers for cleaning.

Note

Before cleaning the printer, be sure to turn off the power and disconnect the power cord. (When cleaning the platen, power may be required.)

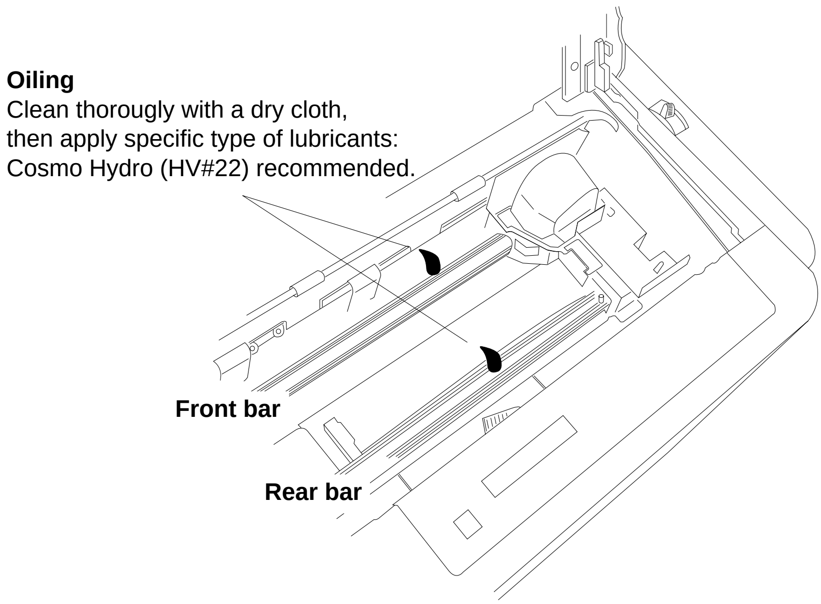
Platen	◆	Use a platen cleaner, or any weak alcohol solvents, to remove any ink from the platen and bail rollers. Do not apply any other liquid chemical to the platen. **Note** Even with a specified platen cleaner, frequent use of the liquid is not recommended. Apply only when it is necessary.
Inside the printer	◆	Use a vacuum cleaner to remove paper dust and particles from inside the printer. A small brush is suitable for removing paper dust from hard-to-get-at areas.
Exterior Casing	◆	Clean with a soft cloth dampened with a mild detergent. Never use organic solvents such as alcohol or thinner.



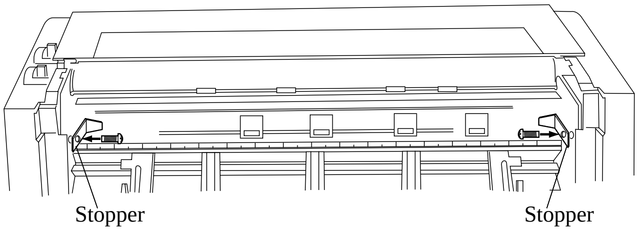
❑ Lubrication

In the case of heavy use of the printer, apply a specified lubricating oil only to the front and rear metal carriage bar. When applying the lubricant to the carriage bars, spread the oil by manually moving the print head back and forth along the carriage bar.

Consult your dealer to obtain the recommended lubricating oil. Do not use an unspecified oil, or it may reduce the printer's performance drastically.

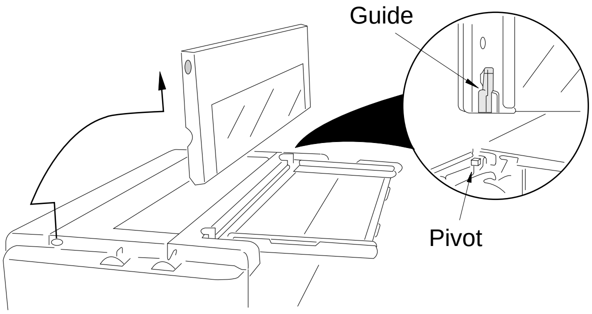


❑ Printer cover removal



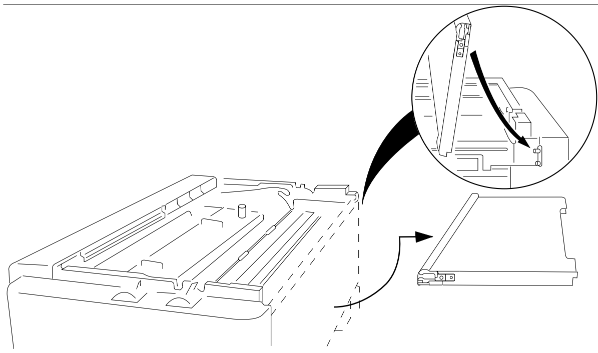
Rear Top Cover Removal

- ◆ Remove the Rear Cover.
  Open the Rear Cover to the level position and pull it.
- ◆ Remove the two Stoppers for the Rear Top Cover.
  Detach the two screws to remove the two Stoppers.
- ◆ Remove the Rear Top Cover.
  Slide the Rear Top Cover toward the rear and raise it to vertical position and lift straight upward.



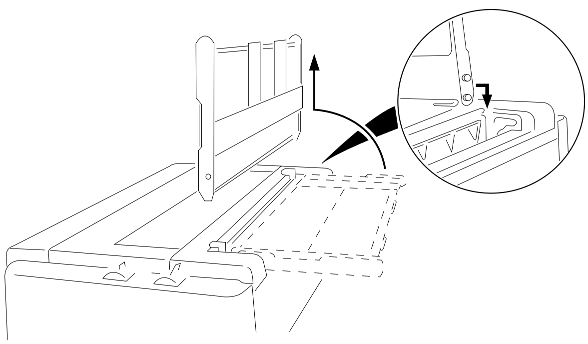
Printer Cover

- Open the front cover to an upright position, then lift and remove the cover.



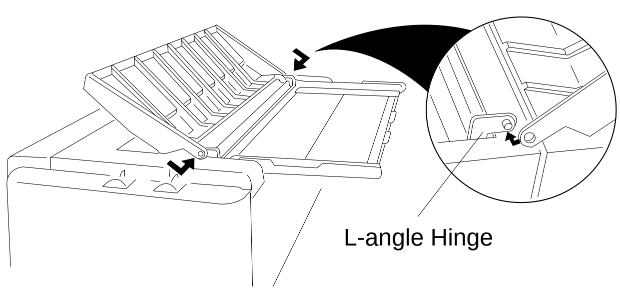
Rear Cover

- Open the rear cover from the bottom edge and pull it toward the bottom to remove.



Paper Rack

- Slide both paper guides to the extreme left and right edges of the paper rack. Raise the rear end to stand vertically and lift straight upward to remove.



Sound Seal Cover

- Push out on the outer edge of the sound seal cover where it connects to the L-angle from the printer while pushing the stud of the L-angle out of the hole. Then remove the whole cover.

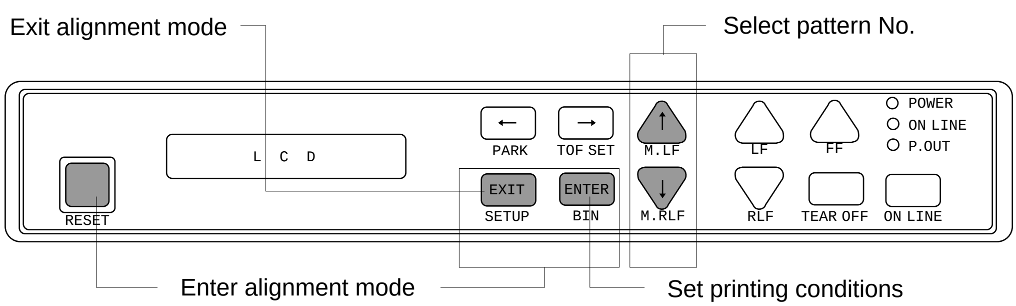
❑ Vertical alignment mode

The vertical alignment mode serves to compensate for the slippage of the vertical printing positions, that occurs due to individual differences and age distortion of the printer.

	Print mode	Character mode family
MODE 0	Draft pica	Speed draft (SD), super speed draft (SSD), single density graphic, double speed/double density graphic
MODE 1	Draft elite	979-dot graphics
MODE 2	NLQ pica	Draft condense (15 CPI, 17.1 CPI, 20 CPI), double density graphic, quadruple density graphic, 1088-dot graphic, 1224-dot graphic
MODE 3	NLQ elite	1958-dot graphic
MODE 4	NLQ condensed (20 CPI)	NLQ condense (15 CPI, 17.1 CPI, 20 CPI)

Operation and printing pattern

Before performing the adjustment mode, make sure the ribbon cassette and at least 10-inch wide paper are properly installed in the printer.



1. Press the **SETUP** and **BIN** keys simultaneously while turning ON the printer or pressing the **RESET** key. Hold down the both **SETUP** and **BIN** keys until the LCD displays "ALIGNADJUST".

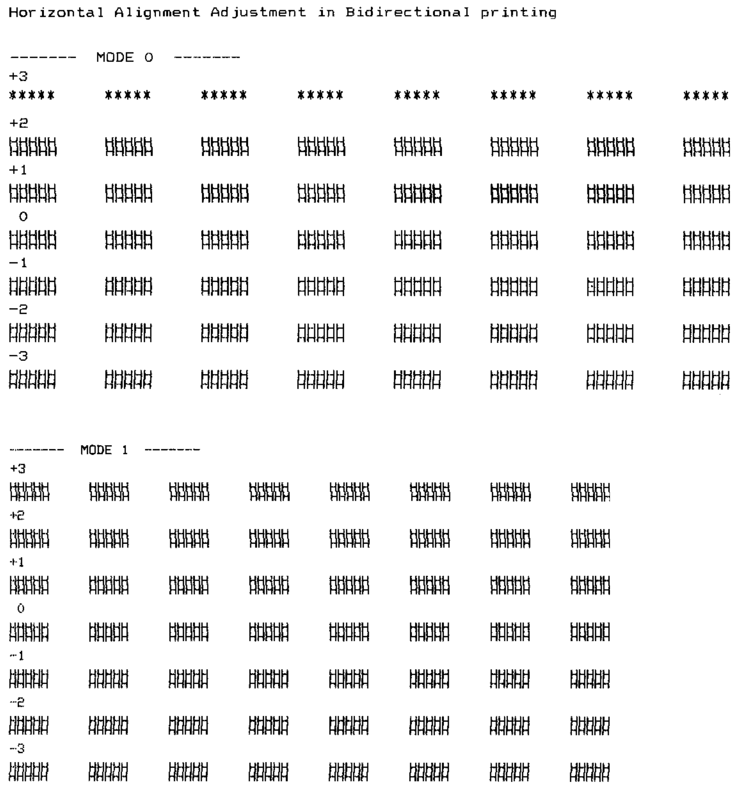
   SETUP key + **BIN** key + Power ON (or **RESET** key)

2. Seven patterns from +3 to -3 in the mode 0 are printed in accordance with the printing conditions. The pattern of the present printing condition is printed at position 0 (zero).

3. After the patterns are printed and the friction lever is set to the fanfold setting, the paper is automatically scrolled. When the friction lever is set to the cut sheet setting, the form feed operation takes place and the LCD indicates “SELECT GRADE: 0”.

```
SELECT GRADE: 0
```

PRINTED PATTERNS EXAMPLE



Description of Patterns
The printer has 13 preprogrammed patterns in each mode from which only seven patterns are printed. The pattern "****..." indicates out-of-range. Consult your dealer if you cannot find correct pattern.

4. Judging from the printed pattern in each print mode, select the grade number of a best aligned pattern between +3 and -3.by pressing the Left and Right arrow keys.

5. Press the **ENTER** key to set the printing condition. Printing for the next mode automatically starts.

6 Repeat the steps 4 and 5 for modes 1 through 4.

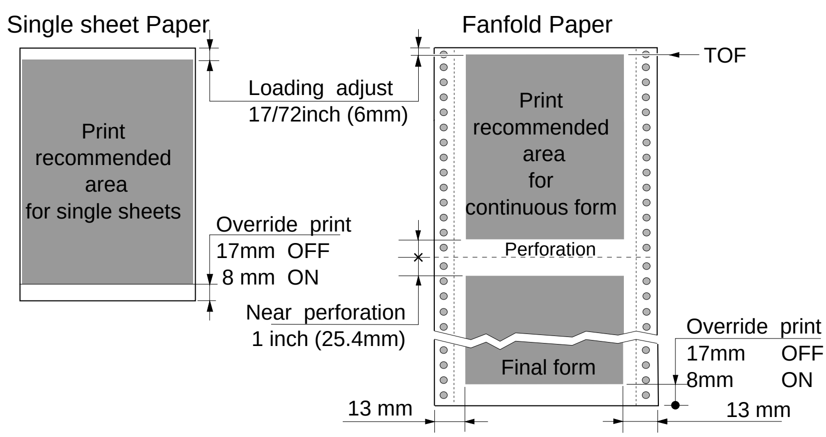
7 After all adjustment is completed, the LCD displays "`PRESS RESET SW`". By pressing the **RESET** key, the printer exits from this vertical alignment mode.

Appendix A. Specifications

❑ Printing specifications

Printing method	• Impact dot matrix and bidirectional logic seeking printing
Print Head	• 18 pins (4 rows in parallel)
Emulation	• Epson FX-1050 • IBM Proprinter III XL • BP-5460 FA
Resident fonts	• S.Roman, Sans Serif, Draft, Speed draft, Super speed draft
Character sets	• Epson character sets • IBM character sets and code pages • SPI character sets
Graphic printing	8 modes (8 or 9 pin graphics) — dpl: dot per line • 816 dpl (60 dpi) • 979 dpl (72 dpi) • 1088 dpl (80 dpi) • 1224 dpl (90 dpi) • 1632 dpl (120 dpi) • 1958 dpl (144 dpi) • 3264 dpl (240 dpi)
Print mode	Character spacings • 10cpi Pica print mode • 12cpi Elite, Speed draft print mode • 15cpi Semi-condensed draft, Super speed draft print mode • 17.1cpi Condensed draft print mode • 20cpi Condensed elite print mode • Proportional print mode
Throughput	• Draft (10cpi): 183 lpm • NLQ (10cpi): 38 lpm Evaluation conditions: Data of 100 lines by 132 columns, all a ASCII rolling pattern characters, and 1/6-inch line feed is input from a host and is stored in the 20K-byte communication buffer of the printer. With that condition, the number of printing lines per minute is measured.

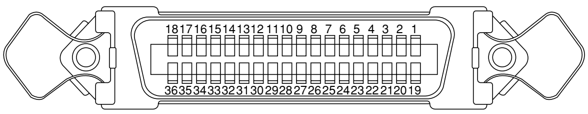
Paper feed method **Paper width** **Paper weight**	Friction method: • Single cut sheet (A3, B4, A4, B5, letter, legal) • 55 kg - 90 kg in Japan • 17 lbs. - 28 lbs. in USA • 64 g/m^2 - 105 g/m^2 in Europe Tractor method: • 45 kg - 90 kg in Japan • 14 lbs. - 28 lbs. in USA • 53 g/m^2 - 105 g/m^2 in Europe CSF mode: • 55 kg - 70 kg in Japan • 15lbs. - 21 lbs. in USA • 60 g/m^2 - 81 g/m^2 in Europe
Multiple copies	• Original plus 6, non-carbon, 34 g/m^2 • Total thickness of less than 0.41 mm
Line feed pitch	• Minimum of 1/216 inch
Line feed speed	• 60 lines/second (6 lines/inch)
Print speed	• Super Speed Draft (15 cpi): 840 cps (character per second) • Speed Draft (12 cpi): 672 cps • Draft Pica (10 cpi): 560 cps • NLQ Pica (10 cpi): 138 cps
Recommended **print area**	



Print mode		Character Spacing	Dot Spacing H x V (inches)	Max No. of Columns	Character Structure (V x H)	Printing Speed (cps)
Draft	Pica	10 cpi	1/120 x 1/72	136	12 x 9	560
	Elite (Epson)	12 cpi	1/120 x 1/72	163	10 x 9	672
	Elite (IBM)	12 cpi	1/144 x 1/72	163	12 x 9	556
		15 cpi	1/180 x 1/72	204	12 x 9	416
	Condensed pica	17 cpi	1/240 x 1/72	233	14 x 9	476
	Condensed elite	20 cpi	1/240 x 1/72	272	12 x 9	556
Speed Draft		12 cpi	1/120 x 1/72	163	10 x 9	672
Super Speed Draft		15 cpi	1/120 x 1/72	204	8 x 9	840
Near Letter Quality	Pica	10 cpi	1/240 x 1/144	136	24 x 18	138
	Elite (Epson)	12 cpi	1/240 x 1/144	163	20 x 18	166
	Elite (IBM)	12 cpi	1/288 x 1/144	163	24 x 18	138
		15 cpi	1/360 x 1/144	204	24 x 18	104
	Condensed pica	17 cpi	1/480 x 1/144	233	28 x 18	119
	Condensed elite	20 cpi	1/480 x 1/144	272	24 x 18	138
				(dpl)		**(dps)**
Graphics	Standard density		1/60 x 1/72	816	n x 8 or 9	3360
	Double density		1/120 x 1/72	1632	n x 8 or 9	3333
	Double speed, Double density		1/120 x 1/72	1632	n x 8 or 9	6720
	Quadruple density		1/240 x 1/72	3264	n x 8 or 9	6666
	979 dot		1/72 x 1/72	979	n x 8 or 9	3333
	1088 dot		1/80 x 1/72	1088	n x 8 or 9	2222
	1224 dot		1/90 x 1/72	1224	n x 8 or 9	2500
	1958 dot		1/144 x 1/72	1958	n x 8 or 9	3333
	High density		1/120 x 1/144	1632	n x 16	3333

❑ Parallel interface specifications

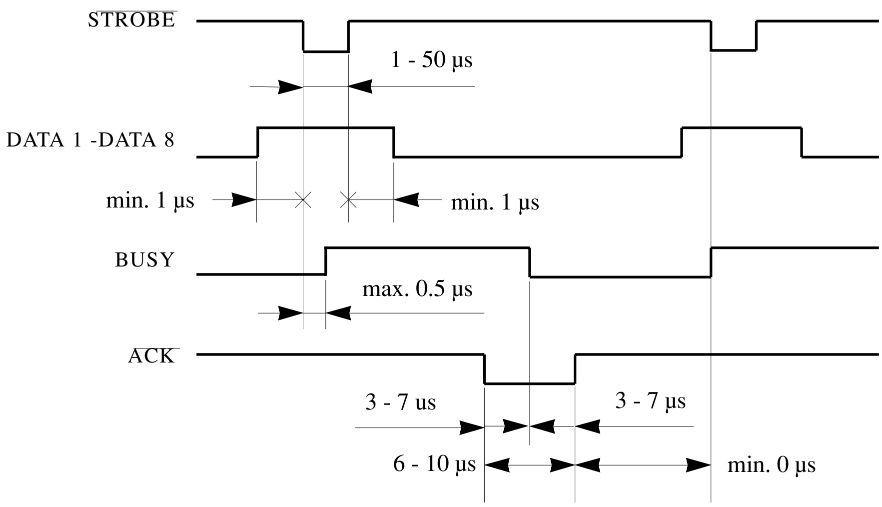
- **Input connector**



PIN	SIGNAL	IN/OUT	PIN	SIGNAL	IN/OUT
1	STROBE	IN	19	GND	
2	DATA 1	IN	20	GND	
3	DATA 2	IN	21	GND	
4	DATA 3	IN	22	GND	
5	DATA 4	IN	23	GND	
6	DATA 5	IN	24	GND	
7	DATA 6	IN	25	GND	
8	DATA 7	IN	26	GND	
9	DATA 8	IN	27	GND	
10	ACK	OUT	28	GND	
11	BUSY	OUT	29	GND	
12	PE	OUT	30	GND	
13	SELECT	OUT	31	INITIAL	IN
14	AUTOFEED	IN	32	ERROR	OUT
15	NC		33	NC	
16	NC		34	NC	
17	CHASSIS GND		35	NC	
18	+5 V (max. 200mA)		36	NC	

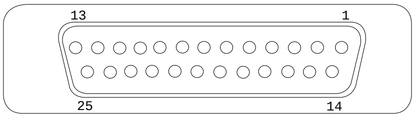
Notes: **1.** HIGH is pulled up to + 5V by 2.2k Ω resistor.
2. NC stands for no connection.
3. CHASSIS GND and GND are connected in the printer.

- **Data input timing chart**



❑ Serial interface specifications

- **Input connector**



RS-232C Pin assignments

PIN	SIGNAL	IN/OUT	PIN	SIGNAL	IN/OUT
1	CHASSIS GND		14	NC	
2	TXD	OUT	15	NC	
3	RXD	IN	16	NC	
4	RTS	OUT	17	NC	
5	CTS	IN	18	NC	
6	DSR	IN	19	NC	
7	SIGNAL GND		20	DTR	OUT
8	CD	IN	21	NC	
9	NC		22	NC	
10	NC		23	NC	
11	SRTS	OUT	24	NC	
12	NC		25	NC	
13	NC				

Notes: **1.** NC stands for no connection.
2. CHASSIS GND and GND are connected in the printer.

- **Handshake protocol**
One of the following four protocols can be selected:
- DTR protocol
- X ON/X OFF protocol I
- X ON/X OFF protocol II
- ETX/ACK protocol

- **Baud Rate**
In the setup options, one of the following baud rates can be selected:
1200, 2400, 4800, and 9600 BPS.

❑ Other specifications

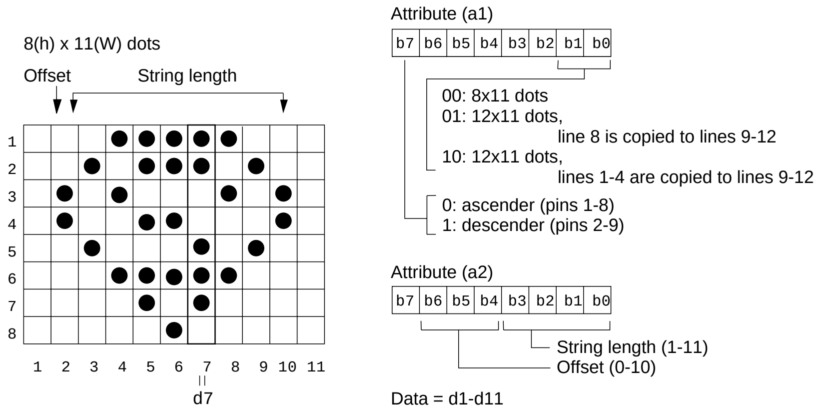
Power supply	• 120VAC : For USA, Canada and Taiwan • 230VAC : For Asia, Oceania, Europe and others
Temperature	• 41°F - 104°F (during Operation) • 5°C - 40°C
Humidity	• 20 % - 80 % (no condensation)
External dimensions	Model A • 24.4"(Width x 10.2"(Height) x 12.0"(Depth) • 620(W) x 260(H) x 305(D) mm • With the paper rack and sound seal cover 24.4"(W) x 11.6"(H) x 17.5"(D) 620(W) x 295(H) x 445(D) mm Model B • 24.4"(Width) x 10.2"(Height) x 13.0"(Depth) • 620(W) x 260(H) x 330(D) mm • With the paper rack and sound seal cover 24.4"(W) x 11.6"(H) x 18.5"(D) 620(W) x 295(H) x 470(D) mm
Weight	• Approximately 44.1 lbs. [20 kg]
Power Consumption	• 160 watts (during LQ self test) 2.1A (120VAC), 1.2A (230VAC) • 45 watts (during stand-by) 0.6A (120VAC), 0.4A (230VAC) • 12 watts (sleeping mode) 0.3A (120VAC), 0.2A (230VAC)

_Appendix B. Control code summary________

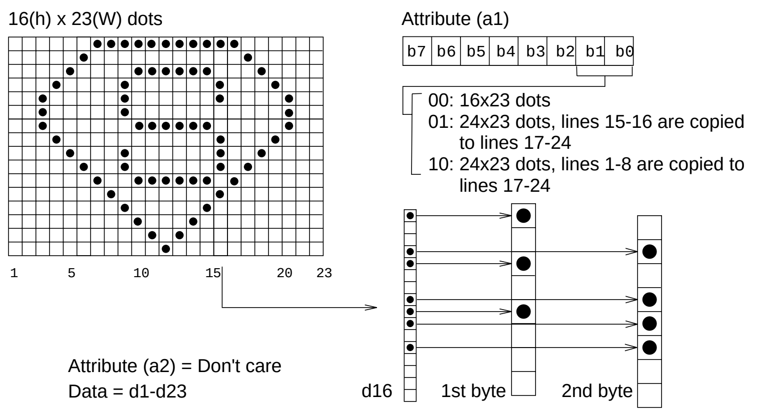
❑ *IBM mode*

ITEM	SYMBOL	Hexadecimal & Decimal	FUNCTION
[1]	**BEL**	[07] H [7] D	Activates the alarm.
[2]	**BS**	[08] H [8] D	Backspace one character.
[3]	**HT**	[09] H [9] D	Moves to next horizontal tab.
[4]	**LF**	[0A] H [10] D	Linefeeds after printing.
[5]	**VT**	[0B]H [11] D	Linefeeds to next vertical tab position after printing.
[6]	**FF**	[0C] H [12] D	Form feeds after printing.
[7]	**CR**	[0D] H [13] D	Carriage return after printing.
[8]	**SO**	[0E] H [14] D	Sets double width character mode for 1 line.
[9]	**SI**	[0F] H [15] D	Sets condensed character mode.
[10]	**DC1**	[11] H [17] D	Selects printer that has been deselected by ESC Q.
[11]	**DC2**	[12] H [18] D	Selects pica (10 cpi) character mode.
[12]	**DC4**	[14] H [20] D	Cancels double width character mode set by SO.
[13]	**CAN**	[18] H [24] D	Clears data in buffer.
[14]	**ESC EM n**	[1B,19,n] H [27,25,n] D	Controls Cut Sheet Feeder. n=0 : Manual feeding. n=1 : Selects Bin 1. n=2 : Selects Bin 2. n=R : Ejects a cut sheet paper loaded in the printer.
[15]	**ESC – n**	[1B,2D,n] H [27,45,n] D	Sets or cancels underline mode. **n=0** : underline is cancelled. **n=1** : underline is set.
[16]	**ESC 0**	[1B,30] H [27,48] D	Sets line spacing to 1/8".
[17]	**ESC 1**	[1B,31] H [27,49] D	Sets line spacing to 7/72".
[18]	**ESC 2**	[1B,32] H [27,50] D	Linefeeds with the line spacing set by ESC A.
[19]	**ESC 3 n**	[1B,33,n] H [27,51,n] D	Sets line spacing to n/216" (**1≤n≤255**).
[20]	**ESC 4**	[1B,34] H [27,52] D	Sets the current print position as top-of-form (TOF).
[21]	**ESC 5 n**	[1B,35,n] H [27,53,n] D	Sets/cancels auto linefeed with CR **n=0** : Carriage return without linefeed. **n=1** : Carriage return with linefeed.
[22]	**ESC 6**	[1B,36] H [27,54] D	Selects IBM character set 2.
[23]	**ESC 7**	[1B,37] H [27,55] D	Selects IBM character set 1.
[24]	**ESC :**	[1B,3A] H [27,58] D	Sets elite (12 cpi) character mode.
[25]	**ESC = n1 n2** **m c a1 a2 data**	[1B,3D,n1,n2,m,c,a1,a2,data] H [27,61,n1,n2,m,c,a1,a2,data] D	Defines download character. When n1=n2=0, the download area is cleared. Total number of data in download characters is defined as **n1 + n2 x 256**. Each character consists of assign code (**c**), attributes (**a1** and **a2**), and **data**. **ESC = NUL NUL** .clears download area. Download characters can be selected for printing or for a storage memory by ESC I command. m=14h indicates a draft download character and m=15 ha NLQ download character.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
		Draft download	m=14h indicates a draft download character.



ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
		NLQ download	m=15h indicates a NLQ download character.



ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[26]	**ESC A n**	[1B,41,n] H [27,65,n] D	Sets line spacing to n/72" (**1≤n≤255**) This command becomes effective by ESC 2.
[27]	**ESC B n1 n2... n64 NUL**	[1B,42,n1,n2,...n64,00] H [27,66,n1,n2,...n64,0] D	Sets vertical tab positions beginning from **n1** and end with **NU**L [00]H. **n=1** is the second line from TOF.
[28]	**ESC C n**	[1B,43,n] H [27,67,n] D	Sets page length in line unit (**1≤n≤255**). The current print line becomes TOF (top of form).
[29]	**ESC C NUL n**	[1B,43,00,n] H [27,67,0,n] D	Sets page length in inch unit (**1≤n≤151**). The current print line becomes TOF (top of form).
[30]	**ESC D n1 n2...n28 NUL**	[1B,44,n1,n2,...n28,00] H [27,68,n1,n2,...n28,0] D	Sets horizontal tab position (**1≤n≤255**). **n** indicates the number of spaces from the left margin with the character width at the command execution. **n=1** is at the first character from the left margin.
[31]	**ESC E**	[1B,45] H [27,69] D	Sets emphasized character mode.
[32]	**ESC F**	[1B,46] H [27,70] D	Cancels emphasized character mode.
[33]	**ESC G**	[1B,47] H [27,71] D	Sets double strike character mode.
[34]	**ESC H**	[1B,48] H [27,72] D	Cancels double strike character mode.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[35]	**ESC I n**	[1B,49] H [27,73] D	Selects one of font styles. **n=0 :** Draft 10 cpi **n=1 :** Speed draft 12 cpi **n=2 :** NLQ (Sans Serif) **n=3 :** NLQ (Roman) **n=4 :** Draft download **n=5 :** Speed draft download **n=6 :** NLQ (Sans Serif) download **n=7 :** NLQ (Roman) download **n=11 :** NLQ (Roman) italic
[36]	**ESC J n**	[1B,4A,n] H [27,74,n] D	Linefeeds in various spacings in n/216" (**1≤n≤255**).
[37]	**ESC K n1 n2 data**	[1B,4B,n1,n2,data] H [27,75,n1,n2,data] D	Prints the 8-pin standard-density graphics (60 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[38]	**ESC L n1 n2 data**	[1B,4C,n1,n2,data] H [27,76,n1,n2,data] D	Prints the 8-pin double-density graphics (120 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[39]	**ESC N n**	[1B,4E,n] H [27,78,n] D	Sets bottom margin (**1≤n≤255**). **n** specifies the number of lines not to be printed at the end of a page.
		For example: If the line spacing is 1/6 inch and the page length is 66 lines, an **ESC N 6** command causes the printer to print 60 lines, then skip 6 lines. The space to be skipped is 1 inch (1/6 inch **x** 6).	
[40]	**ESC O**	[1B,4F] H [27,79] D	Cancels bottom margin set by ESC N command.
[41]	**ESC P n**	[1B,50,n] H [27,80,n] D	Sets/cancels proportional mode **n=0 :** Cancels proportional mode. **n=1 :** Sets proportional mode.
[42]	**ESC Q n**	[1B,51,16] H [27,81,22] D	Deselects the printer. DC1 selects the printer. **n=16h :** Deselects the printer. **n≠16h :** Ignores this command.
[43]	**ESC R**	[1B,52] H [27,82] D	Initializes horizontal tabs to every 8th column and clears vertical tabs.
[44]	**ESC S n**	[1B,53,n] H [27,83,n] D	Sets superscript or subscript character mode. **n=0 :** the superscript character mode is set. **n=1 :** the subscript character mode is set.
[45]	**ESC T**	[1B,54] H [27,84] D	Cancels super-/subscript character mode.
[46]	**ESC U n**	[1B,55,n] H [27,85,n] D	Selects unidirectional or bidirectional printing. **n=0 :** bidirectional printing is set. **n=1 :** unidirectional printing is set.
[47]	**ESC W n**	[1B,57,n] H [27,87,n] D	Sets or cancels double width character mode. **n=0 :** the double width character mode is cancelled. **n=1 :** the double width character mode is set.
[48]	**ESC X n m**	[1B,5C,n,m] H [27,92,n,m] D	Sets left and right margins (**0≤n<m≤255**) **n**: left margin, **m**:right margin.
[49]	**ESC Y n1 n2 data**	[1B,59,n1,n2,data] H [27,89,n1,n2,data] D	Prints 8-pin double-speed double-density graphics (120 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[50]	**ESC Z n1 n2 data**	[1B,5A,n1,n2,data] H [27,90,n1,n2,data] D	Prints 8-pin quadruple-density graphics (240 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[51]	**ESC [@ n1 n2 m1...m4**	[1B,5B,2D,n1,n2,m1,..,m4] H [27,91,45,n1,n2,m1,..,m4] D	Sets single or double height/width/line-spacing mode. **n1=4**, **n2=0**, **m1=0**, and **m2=0.** **m3=01h** : single character height. **m3=02h** : double character height. **m3=10h** : single line spacing. **m3=20h** : double line spacing. **m3=22h** : double character height/line spacing. **m4=01h** : single character width. **m4=02h** : double character width.
[52]	**ESC [K n1 n2 m1 m2 m3 m4**	[1B,5B,4B,n1,n2,m1,..,m4] H [27,91,75,n1,n2,m1,..,m4] D	Software initialization. The number of data bytes following **n2** is defined as **n1 + n2 x 256**.

	Code	Initialize condition
m1	00h, 04h, FEh	Initialize without clearing download area
	01h, 05h, FFh	Initialize with clearing download area
m2	03h	Fixed value
m3 and **m4**		Indicates the combination of each parameters:

	m3	**m4**
bit7	valid (0) or invalid (1) of m3	valid (0) or invalid (1) of m4
bit6	—	USA (0) or Multilingual (1)
bit5	Alarm on (0) or off (1)	Pre (0) or Unidirectional (1)
bit4	LF=LF (0) or LF=CR+LF (1)	20 cpi valid (0) or invalid (1)
bit3	CR=CR (0) or CR=CR+LF (1)	Roman (0) or Sans Serif (1)
bit2	Page length of 11" (0) or 12" (1)	FF code valid (0) or invalid (1)
bit1	non-slashe zero (0) or slashed zero (1)	print line width of 13.6" (0) or 8" (1)
bit0	character set 1 (0) or character set 2 (1)	—

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[53]	**ESC [T n1 n2 m1…m4**	[1B,5B,54,n1,n2,m1,…m4] H [27,91,84,n1,n2,m1,…m4] D	Selects code page. **n1 = 4, n2 = 0, m1 = 0, and m2 = 0.**

m3	m4	code page	m3	m4	code page
01h	B5h	437	04h	E2h	1250
13h	65h	437 Greek	04h	E4h	1252
03h	04h	772	07h	D1h	Lithuanian-KBL
03h	06h	774	0Bh	CDh	Bulgaria
03h	52h	850	0Fh	00h	IBM Russian
03h	53h	851	0Fh	03h	MAZOWIA
03h	54h	852	0Fh	04h	Code MJK
03h	55h	853	0Fh	05h	Hungarian
03h	57h	855	0Fh	07h	BRASCII
03h	59h	857	0Fh	08h	ABICOMP
03h	5Ah	858	13h	62h	USSR GOST
03h	5Ch	860	40h	00h	ISO 8859-1
03h	5Dh	861	40h	01h	ISO 8859-2
03h	5Fh	863	40h	06h	ISO 8859-7
03h	61h	865	40h	08h	ISO 8859-9
03h	62h	866	40h	0Eh	ISO 8859-15
03h	65h	869			

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[54]	**ESC \ n1 n2**	[1B,5C,n1,n2,data] H [27,92,n1,n2,data] D	Prints characters from all character set. The number of character to be printed is defined by **n1 + n2 x 256**.
[55]	**ESC]**	[1B,5D] H [27,93] D	Reverse line feeds by the current line spacing.
[56]	**ESC ^ n**	[1B,5E,n] H [27,94,n] D	Prints one character (n: character code) from all character set.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[57]	**ESC _ n**	[1B,5F,n] H [27,95,n] D	Sets/cancels overscore mode. **n=0** : Cancels overscore mode. **n=1** : Sets overscore mode.
[58]	**ESC g**	[1B,67] H [27,103] D	Selects 15 cpi character mode.
[59]	**ESC k n**	[1B,6B,n] H [27,107,n] D	Selects NLQ font type. **n=0** : ROMAN is set. **n=1** : SANS SERIF is set.

❑ *FX mode*

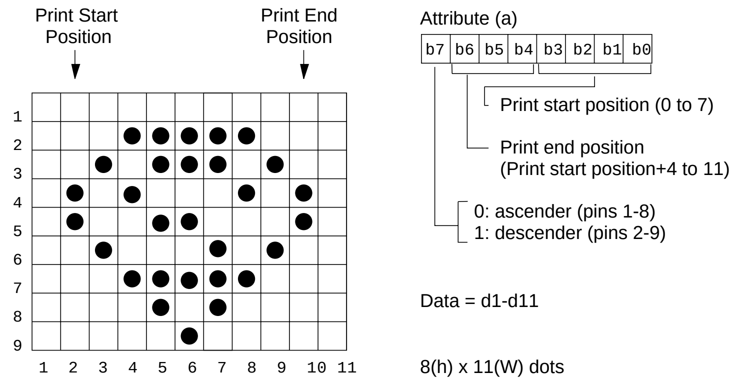
ITEM	SYMBOL	Hexadecimal & Decimal	FUNCTION
[1]	**BEL**	[07] H [7] D	Activates the bell.
[2]	**BS**	[08] H [8] D	Backspace one character.
[3]	**HT**	[09] H [9] D	Moves to next horizontal tab.
[4]	**LF**	[0A] H [10] D	Linefeeds after printing.
[5]	**VT**	[0B]H [11] D	Linefeeds to next vertical tab position after printing.
[6]	**FF**	[0C] H [12] D	Form feeds after printing.
[7]	**CR**	[0D] H [13] D	Carriage return after printing.
[8]	**SO** **ESC SO**	[0E] H [14] D [1B,0E] H [27,14] D	Sets double width character mode.
[9]	**SI** **ESC SI**	[0F] H [15] D [1B,0F] H [27,15] D	Sets condensed character mode.
[10]	**DC1**	[11] H [17] D	Selects printer that has been deselected by DC3.
[11]	**DC2**	[12] H [18] D	Cancels condensed character mode.
[12]	**DC3**	[13] H [19] D	Deselects printer.
[13]	**DC4**	[14] H [20] D	Cancels double width character mode set by SO.
[14]	**CAN**	[18] H [24] D	Clears data in buffer and move print head to home position.
[15]	**DEL**	[7F] H [127] D	Deletes one character.
[16]	**ESC EM n**	[1B,19,n] H [27,25,n] D	Controls Cut Sheet Feeder. n=0 : Manual feeding. n=1 : Selects Bin 1. n=2 : Selects Bin 2. n=R : Ejects a cut sheet paper loaded in the printer.
[17]	**ESC SP n**	[1B,20,n] H [27,32,n] D	Sets intercharacter space. A space of n/120 inch is added to the right of each character **(0≤n≤127)**.
[18]	**ESC ! n**	[1B,21,n] H [27,33,n] D	Sets various print modes. **n** is specified by the following combinations. **(0≤n≤255)**

Print modes	Dec.	Hex.	Correspond command
Pica	0	00	`ESC P`
Elite	1	01	`ESC M`
Proportional	2	02	`ESC p`
Condensed	4	04	`SI, DC2`
Emphasized	8	08	`ESC E, ESC F`
Double strike	16	10	`ESC G, ESC H`
Double width	32	20	`ESC W`
Italic	64	40	`ESC 4, ESC 5`
Underline	128	80	`ESC -`

Note: Proportional cannot be specified with elite or condensed, and has higher priority.

ITEM	SYMBOL	Hexadecimal & Decimal	FUNCTION
[19]	**ESC #**	[1B,23] H [27,35] D	Cancels MSB control.
[20]	**ESC $ n1 n2**	[1B,24,n1,n2] H [27,36,n1,n2] D	Sets absolute dot position. The dot pitch is 1/60" and its position is n1 + (n2 **x** 256) dots from the left margin.
[21]	**ESC % n**	[1B,25,n] H [27,37,n] D	Sets resident characters or download characters. n=0 : the resident character set is set. n=1 : the download character set is set.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[22]	**ESC & NUL n1 n2 a data**	[1B,26,00,n1,n2,a,data] H [27,38,0,n1,n2,a,data] D	Defines download character(s). NLQ download character is generated by interpolation. **n1:** first code of download character (00-127) **n2:** last code of download character (00-127)



ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[23]	**ESC (t n1 n2 d1 d2 d3**	[1B, 28, 74, n1, n2, d1, d2, d3] H [27, 40, 116, n1, n2, d1, d2, d3] D	Selects character set n1=3, n2=0, and d1=0 or 1 d1=0 : Italic d1=1 : Graphic

d2	d3	Character Set	d2	d3	Character Set
0	0	Italic	15	0	869
1	0	437	63	50	1250
1	16	437 Greek	63	52	1252
59	0	772	60	0	Lithuanian-KBL
36	0	774	32	0	Bulgaria
3	0	850	61	0	IBM Russian
4	0	851	27	0	MAZOWIA
10	0	852	28	0	Code MJK
5	0	853	62	0	Hungarian
6	0	855	25	0	BRASCII
11	0	857	26	0	ABICOMP
44	0	858	16	0	USSR GOST
7	0	860	127	1	ISO-8859-1
24	0	861	127	2	ISO-8859-2
8	0	863	29	7	ISO-8859-7
9	0	865	31	0	ISO-8859-9
14	0	866	29	15	ISO-8859-15

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[24]	**ESC *m n1 n2 data**	[1B,2A,m,n1,n2,data] H [27,42,m,n1,n2,data] D	Sets various 8 pin graphic mode. The total column number is calculated by **n1 + n2 x 256**.

m	Graphic Type	Number of Pins	Maximum Columns	Horizontal Density
0	Standard-density	8	816	60
1	Double-density	8	1632	120
2	Double-speed double-density	8	1632	120
3	Quadruple-density	8	3264	240
4	80 dpi graphics	8	1088	80
5	72 dpi graphics	8	979	72
6	90 dpi graphics	8	1224	90
7	144 dpi graphics	8	1958	144

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[25]	**ESC – n**	[1B,2D,n] H [27,45,n] D	Sets or cancels underline. **n=0** : underline is cancelled. **n=1** : underline is set
[26]	**ESC / c**	[1B,2F,c] H [27,47,c] D	Selects channel (0-7) of vertical tab.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[27]	**ESC 0**	[1B,30] H [27,48] D	Sets line spacing to 1/8".
[28]	**ESC 1**	[1B,31] H [27,49] D	Sets line spacing to 7/72".
[29]	**ESC 2**	[1B,32] H [27,50] D	Sets line spacing to 1/6".
[30]	**ESC 3 n**	[1B,33,n] H [27,51,n] D	Sets line spacing to n/216" (**0≤n≤255**).
[31]	**ESC 4**	[1B,34] H [27,52] D	Sets Italic character mode. Download characters and graphic characters (B0h-DFh, F4h, and F5h) are not italicized.
[32]	**ESC 5**	[1B,35] H [27,53] D	Cancels Italic character mode.
[33]	**ESC 6**	[1B,36] H [27,54] D	Enlarges print code area. Control code area (80h-9Fh) is printed as characters.
[34]	**ESC 7**	[1B,37] H [27,55] D	Clears ESC 6 command.
[35]	**ESC 8**	[1B,38] H [27,56] D	Disables paper detect function.
[36]	**ESC 9**	[1B,39] H [27,57] D	Enables paper detect function.
[37]	**ESC : NUL n NUL**	[1B,3A,00,n,00] H [27,58,0,n,0] D	Copy RAM download character set from ROM character set. **n=0** : ROMAN is copied. **n=1** : SANS SERIF is copied.
[38]	**ESC <**	[1B,3C] H [27,60] D	Moves print head to home position.
[39]	**ESC =**	[1B,3D] H [27,61] D	Sets MSB of data to "0".
[40]	**ESC >**	[1B,3E] H [27,62] D	Sets MSB of data to "1".
[41]	**ESC ? n m**	[1B,3F,n,m] H [27,63,n,m] D	Re-assign graphic type for **ESC K**, **ESC L**, **ESC Y**, and **ESC Z** commands. **n** : specifies the former graphic type assigned by "**K**", "**L**", "**Y**", or "**Z**". **m** : specifies the new graphic type in table below.

m	Graphic Type	Number of Pins	Maximum Columns	Horizontal Density
0	Standard-density	8	816	60
1	Double-density	8	1632	120
2	Double-speed double-density	8	1632	120
3	Quadruple-density	8	3264	240
4	80 dpi graphics	8	1088	80
5	72 dpi graphics	8	979	72
6	90 dpi graphics	8	1224	90
7	144 dpi graphics	8	1958	144

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[42]	**ESC @**	[1B,40] H [27,64] D	Initializes printer.
[43]	**ESC A n**	[1B,41,n] H [27,65,n] D	Sets line spacing to n/72" (**0≤n≤85**).
[44]	**ESC B n1 n2... n16 NUL**	[1B,42,n1,n2,...n16,00] H [27,66,n1,n2,...n16,0] D	Sets vertical tab positions beginning from **n1** and end with **NU**L [00]H. n=1 is at the second line from TOF.
[45]	**ESC C n**	[1B,43,n] H [27,67,n] D	Sets page length in line unit (**1≤n≤127**). The current print line becomes TOF (top of form).
[46]	**ESC C NUL n**	[1B,43,00,n] H [27,67,0,n] D	Sets page length in inch unit (**1≤n≤22**). The current print line becomes TOF (top of form).
[47]	**ESC D n1 n2...n32 NUL**	[1B,44,n1,n2,...n32,00] H [27,68,n1,n2,...n32,0] D	Sets horizontal tab position (**1≤n≤255**). **n** indicates the number of spaces from the left margin with the character width at the command execution. n=1 is at the second column from the left margin.
[48]	**ESC E**	[1B,45] H [27,69] D	Sets emphasized character mode.
[49]	**ESC F**	[1B,46] H [27,70] D	Cancels emphasized character mode.
[50]	**ESC G**	[1B,47] H [27,71] D	Sets double strike character mode.
[51]	**ESC H**	[1B,48]H [27,72] D	Cancels double strike character mode.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[52]	**ESC I n**	[1B,49,n] H [27,73,n] D	Treats unused control codes in the control area as character codes. **n=0** : Ignores unused control codes **n=1** : treats unused control codes as character codes.
[53]	**ESC J n**	[1B,4A,n] H [27,74,n] D	n/216" linefeeds after printing (**0≤n≤255**).
[54]	**ESC K n1 n2 data**	[1B,4B,n1,n2,data] H [27,75,n1,n2,data] D	Prints the 8-pin Standard-density graphics (60 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[55]	**ESC L n1 n2 data**	[1B,4C,n1,n2,data] H [27,76,n1,n2,data] D	Prints the 8-pin Double-density graphics (120 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[56]	**ESC M**	[1B,4D] H [27,77] D	Selects Elite (12cpi) mode.
[57]	**ESC N n**	[1B,4E,n] H [27,78,n] D	Sets skip over perforation (**1≤n≤127**). **n** specifies the number of lines to be skipped at the end of a page.
		For example: If the line spacing is 1/6 inch and the page length is 66 lines, an **ESC N 6** command causes the printer to print 60 lines, then skip 6 lines. The space to be skipped is 1 inch (1/6 inch **x** 6).	
[58]	**ESC O**	[1B,4F] H [27,79] D	Cancels skip over perforation.
[59]	**ESC P**	[1B,50] H [27,80] D	Selects Pica (10 cpi) mode.
[60]	**ESC Q n**	[1B,51,n] H [27,81,n] D	Sets right margin at the **n**th column (**1≤n≤255**)
[61]	**ESC R n**	[1B,52,n] H [27,82,n] D	Selects International character.

<table>
<tr><th>n</th><th>Country</th><th colspan="12">Hexadecimal Character Code</th></tr>
<tr><th></th><th></th><th>23</th><th>24</th><th>40</th><th>5B</th><th>5C</th><th>5D</th><th>5E</th><th>60</th><th>7B</th><th>7C</th><th>7D</th><th>7E</th></tr>
<tr><td>0</td><td>U.S.A.</td><td>#</td><td>$</td><td>@</td><td>[</td><td>\</td><td>]</td><td>ˆ</td><td>`</td><td>{</td><td>|</td><td>}</td><td>~</td></tr>
<tr><td>1</td><td>FRANCE</td><td>#</td><td>$</td><td>à</td><td>°</td><td>ç</td><td>§</td><td>ˆ</td><td>`</td><td>é</td><td>ù</td><td>è</td><td>¨</td></tr>
<tr><td>2</td><td>GERMANY</td><td>#</td><td>$</td><td>§</td><td>Ä</td><td>Ö</td><td>Ü</td><td>ˆ</td><td>`</td><td>ä</td><td>ö</td><td>ü</td><td>ß</td></tr>
<tr><td>3</td><td>U.K.</td><td>£</td><td>$</td><td>@</td><td>[</td><td>\</td><td>]</td><td>ˆ</td><td>`</td><td>{</td><td>|</td><td>}</td><td>~</td></tr>
<tr><td>4</td><td>DENMARK</td><td>#</td><td>$</td><td>@</td><td>Æ</td><td>Ø</td><td>Å</td><td>ˆ</td><td>`</td><td>æ</td><td>ø</td><td>å</td><td>~</td></tr>
<tr><td>5</td><td>SWEDEN</td><td>#</td><td>€</td><td>É</td><td>Ä</td><td>ö</td><td>Å</td><td>Ü</td><td>é</td><td>ä</td><td>ö</td><td>å</td><td>ü</td></tr>
<tr><td>6</td><td>ITALY</td><td>#</td><td>$</td><td>@</td><td>°</td><td>\</td><td>é</td><td>ˆ</td><td>ù</td><td>à</td><td>ò</td><td>è</td><td>ì</td></tr>
<tr><td>7</td><td>SPAIN</td><td>₧</td><td>$</td><td>@</td><td>¡</td><td>Ñ</td><td>¿</td><td>ˆ</td><td>`</td><td>¨</td><td>ñ</td><td>}</td><td>~</td></tr>
<tr><td>8</td><td>JAPAN</td><td>#</td><td>$</td><td>@</td><td>[</td><td>¥</td><td>]</td><td>ˆ</td><td>`</td><td>{</td><td>|</td><td>}</td><td>~</td></tr>
<tr><td>9</td><td>NORWAY</td><td>#</td><td>€</td><td>É</td><td>Æ</td><td>Ø</td><td>Å</td><td>Ü</td><td>è</td><td>æ</td><td>ø</td><td>å</td><td>ü</td></tr>
<tr><td>10</td><td>DENMARK 2</td><td>#</td><td>$</td><td>É</td><td>Æ</td><td>Ø</td><td>Å</td><td>Ü</td><td>è</td><td>æ</td><td>ø</td><td>å</td><td>ü</td></tr>
<tr><td>11</td><td>SPAIN 2</td><td>#</td><td>$</td><td>á</td><td>¡</td><td>Ñ</td><td>¿</td><td>é</td><td>`</td><td>í</td><td>ñ</td><td>ó</td><td>ú</td></tr>
<tr><td>12</td><td>LATIN AMERICA</td><td>#</td><td>$</td><td>á</td><td>¡</td><td>Ñ</td><td>¿</td><td>é</td><td>ü</td><td>í</td><td>ñ</td><td>ó</td><td>ú</td></tr>
<tr><td>13</td><td>TURKEY</td><td>#</td><td>ı</td><td>I</td><td>Ç</td><td>Ö</td><td>S</td><td>Ü</td><td>g</td><td>ç</td><td>ö</td><td>s</td><td>ü</td></tr>
</table>

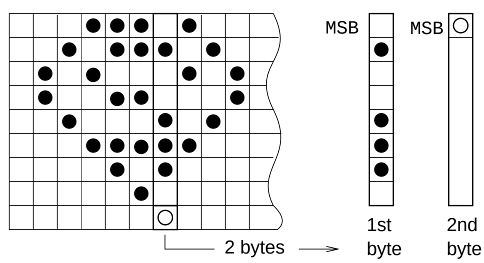
ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[62]	**ESC S n**	[1B,53,n] H [27,83,n] D	Selects superscript or subscript character mode. **n=0 :** the superscript character mode is set. **n=1 :** the subscript character mode is set.
[63]	**ESC T**	[1B,54] H [27,84] D	Cancels super-/subscript character mode printing.
[64]	**ESC U n**	[1B,55,n] H [27,85,n] D	Sets or cancels unidirectional or bidirectional printing. **n=0 :** unidirectional printing is cancelled. **n=1 :** unidirectional printing is set.
[65]	**ESC W n**	[1B,57,n] H [27,87,n] D	Sets or cancels double width character mode. **n=0 :** the double width character mode is cancelled. **n=1 :** the double width character mode is set.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[66]	**ESC Y n1 n2 data**	[1B,59,n1,n2,data] H [27,89,n1,n2,data] D	Prints 8-pin double-speed double-density graphics (120 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[67]	**ESC Z n1 n2 data**	[1B,5A,n1,n2,data] H [27,90,n1,n2,data] D	Prints 8-pin quadruple-density graphics (240 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[68]	**ESC \ n1 n2**	[1B,5C,n1,n2] H [27,92,n1,n2] D	Sets relative dot position to the current position. The dot pitch is 1/120 inch.

(For Example)
n1 + (n2 x 256)< 32768 (8000h), then move **n1 + (n2 x 256)** dots to the right.
n1 + (n2 x 256) ≥ 32768, then move **65536 - {n1 +(n2 x 256)}** dots to the left from the current position.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[69]	**ESC ^ m n1 n2 data**	[1B,5E,m,n1,n2,data] H [27,94,m,n1,n2,data] D	Sets various 9 pin graphic mode. The total number of dots in the data is set by **(n1 + n2 x 256) x 2**.

m	Graphic Type	Number of Pins	Maximum Columns	Horizontal Density
0	Standard-density	9	816	60
1	Double-density	9	1632	120
2	Double-speed double-density	9	1632	120
3	Quadruple-density	9	3264	240
4	80 dpi graphics	9	1088	80
5	72 dpi graphics	9	979	72
6	90 dpi graphics	9	1224	90
7	144 dpi graphics	8	1958	144



ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[70]	**ESC a n**	[1B,61,n] H [27,97,n] D	Justification mode. **n=0 :** left justification is set (default). **n=1 :** centering is set. **n=2 :** right justification is set. **n=3 :** full justification is set. When **n** is other than **0**, the printer performs one linefeed after printing.
[71]	**ESC b c n1 n2 ...n16 NUL**	[1B,62,c,n1,n2,...,n16,00] H [27,98,c,n1,n2,...,n16,0] D	Sets vertical tab position in channels beginning from **n1** and end with **NU**L [00]H as in **ESC b** command. **c** specifies one of channels 0 to 7 to be set.
[72]	**ESC g**	[1B,67] H [27,103] D	Selects 15 cpi mode.
[73]	**ESC j n**	[1B,6A,n] H [27,106,n] D	n/216" reverse linefeed after printing (**0≤n≤255**). This command is ignored in the cut sheet feeder mode.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[74]	**ESC k n**	[1B,6B,n] H [27,107,n] D	Selects NLQ font type. **n=0** : ROMAN is set. **n=1** : SANS SERIF is set.
[75]	**ESC l n**	[1B,6C,n] H [27,108,n] D	Sets left margin at the **n**th horizontal space in the current print mode (**0≤n≤255**).
[76]	**ESC p n**	[1B,70,n] H [27,112,n] D	Sets or cancels proportional mode. **n=0 :** the proportional mode is cancelled. **n=1 :** the proportional mode is set.
[77]	**ESC s n**	[1B,73,n] H [27,115,n] D	Sets or cancels half speed print mode. **n=0** : cancels half speed print mode. **n=1** : sets half speed print mode.
[78]	**ESC t n**	[1B,74,n] H [27,116,n] D	Selects character set. **n=0** : the italic character set is selected. **n=1** : the graphic character set is selected.
[79]	**ESC w n**	[1B,77,n] H [27,119,n] D	Sets or cancels double height character mode. **n=0** : the double height character mode is cancelled. **n=1** : the double height character mode is set.
[80]	**ESC x n**	[1B,78,n] H [27,120,n] D	Selects character quality. **n=0** : draft character mode is set. **n=1** : NLQ character mode is set.

_Appendix B. Control code summary________

❑ *BP-A/I mode*

ITEM	SYMBOL	Hexadecimal & Decimal	FUNCTION
[1]	**BEL**	[07] H [7] D	Activates the alarm.
[2]	**BS**	[08] H [8] D	Backspace one character.
[3]	**HT**	[09] H [9] D	Moves to next horizontal tab.
[4]	**LF**	[0A] H [10] D	Linefeeds after printing.
[5]	**VT**	[0B]H [11] D	Linefeeds to next vertical tab position after printing.
[6]	**FF**	[0C] H [12] D	Form feeds after printing.
[7]	**CR**	[0D] H [13] D	Carriage return after printing.
[8]	**SO**	[0E] H [14] D	Sets double width character mode for 1 line.
[9]	**SI**	[0F] H [15] D	Sets condensed character mode.
[10]	**DC2**	[12] H [18] D	Selects pica (10 cpi) mode.
[11]	**DC4**	[14] H [20] D	Cancels double width character mode set by SO.
[12]	**CAN**	[18] H [24] D	Clears data in buffer.
[13]	**DEL**	[7F] H [127] D	Deletes one character in BP-A mode.
[14]	**ESC GS n**	[1B,1D,n] H [27,29,n] D	Controls Cut Sheet Feeder. n=0 : Manual feeding. n=1 : Selects Bin 1. n=2 : Selects Bin 2. n=R : Ejects a cut sheet paper loaded in the printer.
[15]	**ESC *m n1 n2 data**	[1B,2A,m,n1,n2,data] H [27,42,m,n1,n2, data] D	Sets various 8 pin graphic mode. The total number of dots in the data is set by **n1 + n2 x 256**.or **(n1 + n2 x 256) x 2** for high-density graphics.

m	Graphic Type	Number of Pins	Maximum Columns	Horizontal Density
0	Standard-density	8	816	60
1	Double-density	8	1632	120
2	Double-speed double-density	8	1632	120
3	Quadruple-density	8	3264	240
4	80 dpi graphics	8	1088	80
5	72 dpi graphics	8	979	72
6	90 dpi graphics	8	1224	90
7	High-density graphics	16	1632	120

ITEM	SYMBOL	Hexadecimal & Decimal	FUNCTION
[16]	**ESC ! n**	[1B,21,n] H [27,33,n] D	Sets various print modes. **n** is specified by the following combinations. **(0≤n≤255)**

Print modes	Dec.	Hex.	Correspond command
Pica	0	00	`ESC P`
Elite	1	01	`ESC M`
Proportional	2	02	`ESC p`
Condensed	4	04	`SI, DC2`
Emphasized	8	08	`ESC E, ESC F`
Double strike	16	10	`ESC G, ESC H`
Double width	32	20	`ESC W`
Italic	64	40	`ESC 4, ESC 5`
Underline	128	80	`ESC -`

Note: Proportional cannot be specified with elite or condensed, and has higher priority.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[17]	**ESC #**	[1B,23] H [27,35] D	Cancels MSB control.
[18]	**ESC – n**	[1B,2D,n] H [27,45,n] D	Sets or cancels underline mode. **n=0** : underline is cancelled. **n=1** : underline is set.
[19]	**ESC . n**	[1B,2E,n] H [27,46,n] D	Sets line spacing to n/144" (**1≤n≤127**)
[20]	**ESC / c**	[1B,2F,c] H [27,47,c] D	Selects channel (0-7) of vertical tab.
[21]	**ESC 0**	[1B,30] H [27,48] D	Sets line spacing to 1/8".
[22]	**ESC 1**	[1B,31] H [27,49] D	Sets line spacing to 7/72".
[23]	**ESC 2**	[1B,32] H [27,50] D	Sets line spacing to 1/6" in BP-A mode. Linefeeds with the line spacing set by ESC A in BP-I mode.
[24]	**ESC 3 n**	[1B,33,n] H [27,51,n] D	Sets line spacing to n/216" (**1≤n≤255**).
[25]	**ESC 4**	[1B,34] H [27,52] D	Sets italic character mode.
[26]	**ESC 5**	[1B,35] H [27,53] D	Cancels italic character mode.
[27]	**ESC 6**	[1B,36] H [27,54] D	Selects IBM character set 2 in BP-I mode.
[28]	**ESC 7**	[1B,37] H [27,55] D	Selects IBM character set 1 in BP-I mode.
[29]	**ESC 8**	[1B,38] H [27,56] D	Disables paper empty detection.
[30]	**ESC 9**	[1B,39] H [27,57] D	Enables paper empty detection.
[31]	**ESC :**	[1B,3A] H [27,58] D	Sets elite (12 cpi) mode.
[32]	**ESC <**	[1B,3C] H [27,60] D	Moves print head to home position.
[33]	**ESC =**	[1B,3D] H [27,61] D	Sets MSB of data to "0" in BP-A mode.
[34]	**ESC >**	[1B,3E] H [27,62] D	Sets MSB of data to "1" in BP-A mode.
[35]	**ESC @**	[1B,40] H [27,64] D	Initializes printer.
[36]	**ESC A n**	[1B,41,n] H [27,65,n] D	Sets line spacing to n/72" (**1≤n≤85**). The line feed spacing becomes effective by ESC 2 command in BP-I mode.
[37]	**ESC B n1 n2... n64 NUL**	[1B,42,n1,n2,...n64,00] H [27,66,n1,n2,...n64,0] D	Sets vertical tab positions beginning from **n1** and end with **NU**L [00]H. **n=1** is the second line from TOF.
[38]	**ESC C n**	[1B,43,n] H [27,67,n] D	Sets page length in line unit (**1≤n≤127**). The current print line becomes TOF (top of form).
[39]	**ESC C NUL n**	[1B,43,00,n] H [27,67,0,n] D	Sets page length in inch unit (**1≤n≤22**). The current print line becomes TOF (top of form).
[40]	**ESC D n1 n2...n28 NUL**	[1B,44,n1,n2,...n28,00] H [27,68,n1,n2,...n28,0] D	Sets horizontal tab position (**1≤n≤255**). **n** indicates the number of spaces from the left margin with the character width at the command execution. **n=1** is at the first character from the left margin. Tab position changes accordingly with a change of character width in BP-I mode.
[41]	**ESC E**	[1B,45] H [27,69] D	Sets emphasized character mode.
[42]	**ESC F**	[1B,46] H [27,70] D	Cancels emphasized character mode.
[43]	**ESC G**	[1B,47] H [27,71] D	Sets double strike character mode.
[44]	**ESC H**	[1B,48]H [27,72] D	Cancels double strike character mode.
[45]	**ESC J n**	[1B,4A,n] H [27,74,n] D	Linefeeds n/216" (**0≤n≤255**).
[46]	**ESC K n1 n2 data**	[1B,4B,n1,n2,data] H [27,75,n1,n2,data] D	Prints the 8-pin standard-density graphics (60 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[47]	**ESC L n1 n2 data**	[1B,4C,n1,n2,data] H [27,76,n1,n2,data] D	Prints the 8-pin double-density graphics (120 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[48]	**ESC M**	[1B,4D] H [27,77] D	Selects Elite (12 cpi) mode.
[49]	**ESC N n**	[1B,4E,n] H [27,78,n] D	Sets bottom margin (**1≤n≤127**). **n** specifies the number of lines not to be printed at the end of a page.
		For example: If the line spacing is 1/6 inch and the page length is 66 lines, an **ESC N 6** command causes the printer to print 60 lines, then skip 6 lines. The space to be skipped is 1 inch (1/6 inch **x** 6).	
[50]	**ESC O**	[1B,4F] H [27,79] D	Cancels skip over perforation.
[51]	**ESC P**	[1B,50] H [27,80] D	Selects Pica (10 cpi) mode.
[52]	**ESC Q n**	[1B,51,n] H [27,81,n] D	Sets right margin at the **n**th horizontal space in the current print mode (**0≤n≤255**).
[53]	**ESC R n**	[1B,52,n] H [27,82,n] D	Selects international character in BP-A mode.

<table>
<tr><th rowspan="2">n</th><th rowspan="2">Country</th><th colspan="12">Hexadecimal Character Code</th></tr>
<tr><th>23</th><th>24</th><th>40</th><th>5B</th><th>5C</th><th>5D</th><th>5E</th><th>60</th><th>7B</th><th>7C</th><th>7D</th><th>7E</th></tr>
<tr><td>0</td><td>U.S.A.</td><td>#</td><td>$</td><td>@</td><td>[</td><td>\</td><td>]</td><td>ˆ</td><td>`</td><td>{</td><td>|</td><td>}</td><td>~</td></tr>
<tr><td>1</td><td>FRANCE</td><td>#</td><td>$</td><td>à</td><td>°</td><td>ç</td><td>§</td><td>ˆ</td><td>`</td><td>é</td><td>ù</td><td>è</td><td>¨</td></tr>
<tr><td>2</td><td>GERMANY</td><td>#</td><td>$</td><td>§</td><td>Ä</td><td>Ö</td><td>Ü</td><td>ˆ</td><td>`</td><td>ä</td><td>ö</td><td>ü</td><td>ß</td></tr>
<tr><td>3</td><td>U.K.</td><td>£</td><td>$</td><td>@</td><td>[</td><td>\</td><td>]</td><td>ˆ</td><td>`</td><td>{</td><td>|</td><td>}</td><td>~</td></tr>
<tr><td>4</td><td>DENMARK</td><td>#</td><td>$</td><td>@</td><td>Æ</td><td>Ø</td><td>Å</td><td>ˆ</td><td>`</td><td>æ</td><td>ø</td><td>å</td><td>~</td></tr>
<tr><td>5</td><td>SWEDEN</td><td>#</td><td>€</td><td>É</td><td>Ä</td><td>ö</td><td>Å</td><td>Ü</td><td>é</td><td>ä</td><td>ö</td><td>å</td><td>ü</td></tr>
<tr><td>6</td><td>ITALY</td><td>#</td><td>$</td><td>@</td><td>°</td><td>\</td><td>é</td><td>ˆ</td><td>ù</td><td>à</td><td>ò</td><td>è</td><td>ì</td></tr>
<tr><td>7</td><td>SPAIN</td><td>₧</td><td>$</td><td>@</td><td>¡</td><td>Ñ</td><td>¿</td><td>ˆ</td><td>`</td><td>¨</td><td>ñ</td><td>}</td><td>~</td></tr>
<tr><td>8</td><td>JAPAN</td><td>#</td><td>$</td><td>@</td><td>[</td><td>¥</td><td>]</td><td>ˆ</td><td>`</td><td>{</td><td>|</td><td>}</td><td>~</td></tr>
<tr><td>9</td><td>NORWAY</td><td>#</td><td>€</td><td>É</td><td>Æ</td><td>Ø</td><td>Å</td><td>Ü</td><td>è</td><td>æ</td><td>ø</td><td>å</td><td>ü</td></tr>
<tr><td>10</td><td>DENMARK 2</td><td>#</td><td>$</td><td>É</td><td>Æ</td><td>Ø</td><td>Å</td><td>Ü</td><td>è</td><td>æ</td><td>ø</td><td>å</td><td>ü</td></tr>
<tr><td>11</td><td>SPAIN 2</td><td>#</td><td>$</td><td>á</td><td>¡</td><td>Ñ</td><td>¿</td><td>é</td><td>`</td><td>í</td><td>ñ</td><td>ó</td><td>ú</td></tr>
<tr><td>12</td><td>LATIN AMERICA</td><td>#</td><td>$</td><td>á</td><td>¡</td><td>Ñ</td><td>¿</td><td>é</td><td>ü</td><td>í</td><td>ñ</td><td>ó</td><td>ú</td></tr>
<tr><td>13</td><td>TURKEY</td><td>#</td><td>ı</td><td>I</td><td>Ç</td><td>Ö</td><td>S</td><td>Ü</td><td>g</td><td>ç</td><td>ö</td><td>s</td><td>ü</td></tr>
</table>

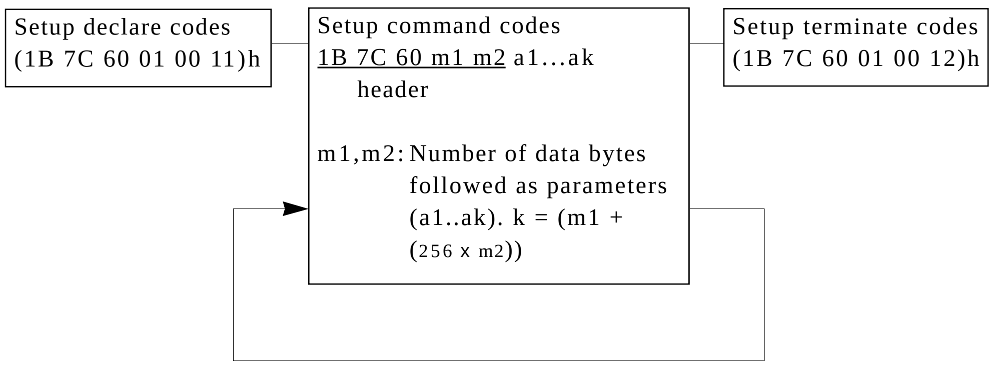
ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[54]	**ESC S n**	[1B,53,n] H [27,83,n] D	Sets superscript or subscript character mode. **n=0 :** the superscript character mode is set. **n=1 :** the subscript character mode is set.
[55]	**ESC T**	[1B,54] H [27,84] D	Cancels super-/subscript character mode.
[56]	**ESC U n**	[1B,55,n] H [27,85,n] D	Selects unidirectional or bidirectional **n=0 :** bidirectional printing is set. **n=1 :** unidirectional printing is set.
[57]	**ESC W n**	[1B,57,n] H [27,87,n] D	Sets or cancels double width character mode. **n=0 :** the double width character mode is cancelled. **n=1 :** the double width character mode is set.
[58]	**ESC X n**	[1B,58,n] H [27,88,n] D	Same as the ESC x n command.
[59]	**ESC Y n1 n2 data**	[1B,59,n1,n2,data] H [27,89,n1,n2,data] D	Prints 8-pin double-speed double-density graphics (120 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[60]	**ESC Z n1 n2 data**	[1B,5A,n1,n2,data] H [27,90,n1,n2,data] D	Prints 8-pin quadruple-density graphics (240 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.

ITEM	SYMBOL	Hexadecimal Decimal	FUNCTION
[61]	**ESC b c n1 n2 ...n64 NUL**	[1B,62,c,n1,n2,...,n64,00] H [27,98,c,n1,n2,...,n64,0] D	Sets vertical tab position in channels beginning from **n1** and end with **NU**L [00]H as in **ESC B** command. **c** specifies one of channels 0 to 7 to be set.
[62]	**ESC g**	[1B,67] H [27,103] D	Selects 15 cpi mode.
[63]	**ESC k n1 n2 data**	[1B,6B,n1,n2,data] H [27,107,n1,n2,data] D	Prints 8-pin high-density graphics (144 dpi). The total number of dots in the data is set by **n1 + n2 x 256**.
[64]	**ESC l n**	[1B,6C,n] H [27,108,n] D	Sets left margin at the **n**th horizontal space in the current print mode (**0≤n≤255**).
[65]	**ESC p n**	[1B,70,n] H [27,112,n] D	Sets or cancels proportional mode. **n=0 :** the proportional mode is cancelled. **n=1 :** the proportional mode is set.
[66]	**ESC x n**	[1B,78,n] H [27,120,n] D	Selects character quality. **n=0** : draft character mode is set. **n=1** : NLQ character mode is set.

❑ *Setup options control codes*

This command is specially designed to assist you in utilizing the printer to its fullest potential. Most of printer's setup options can be accessed and changed through the following command sequence.

Setup command sequence



Notes

1. This command sequence is only valid when the Software setup is set to YES (enabled) in the extended setup options at the front control panel. The command is treated as regular print data if the software setup is disabled.

2. Always start the software setup commands with the setup declare code and end by the setup terminate code.

3. In order to store the parameters changed in the setup options through these control codes, be sure to insert the "Save setup" function code before the setup terminate codes.

ITEM	Mode	Code & Hexadecimal	n: (Hex.) = selection
[1]	**Font**	Header A n 1B, 7C, 60, 02, 00, 41, n	n: 00=Roman, 01=Sans Serif, n : 10h=Code (Draft), 11h=S.D., 12h=S.S.D,
[2]	**Character spacing**	Header B n 1B, 7C, 60, 02, 00, 42, n	n: 00=Code, 01=5 cpi, 02=6 cpi, 03=10 cpi, n: 05=15 cpi, 06=17 cpi, 07=20 cpi, 08=Proportional.
[3]	**Page length** (Fanfold)	Header C n 1B, 7C, 60, 02, 00, 43, n	n: 00=Code 01=2", 02=2.5", 03=3", 04=4", 05=4.5", 06=5", n: 07=5.5", 08=7", 09=8.5", 0A=10", 0B=11", 0C=12", 0D=15", n: 0E=16.5", 0F=8", 10=14", 11=16", 12=17", 13=22".
[4]	**Page length** (Single)	Header i n 1B, 7C, 60, 02, 00, 69, n	n: 00=Code, 01=B5 portrait, 02=B5 landscape, 03=A4 portrait, 04=A4 landscape, 05=B4 portrait, 06=B4 landscape, n: 07=Letter portrait, 08=Letter landscape, 09=Legal portrait, 0A=Letter landscape, 0B=A3 portrait, 0C=A3 landscape.
[5]	**Multi-part**	Header D n 1B, 7C, 60, 02, 00, 44, n	n: 00=Normal, 01=Dark1, n: 02=Dark2, 03=Dark3.
[6]	**Select setup**	Header E n 1B, 7C, 60, 02, 00, 45, n	n: 00=MEM1, 01=MEM2, n: 02=MEM3, FF=Factory default.
[7]	**Loading adjustment**	Header G n 1B, 7C, 60, 02, 00,47, n	n: n/72" ($0 \le n \le 180$)Decimal
[8]	**Paper width**	Header H n 1B, 7C, 60, 02, 00, 48, n	n: 00=Manual≥9", 01=Manual<9" n: 02=Fanfold≥9", 03=Fanfold<9"
[9]	**Line width**	Header I n 1B, 7C, 60, 02, 00, 49, n	n: 00=13.6 inches,. 01=8 inches.
[10]	**Print direction**	Header J n 1B, 7C, 60, 02, 00, 4A, n	n: 00=Predirection, 01=Unidirection, n: 02=Bidirection.
[11]	**Line spacing**	Header K n 1B, 7C, 60, 02, 00, 4B, n	n: 00=Code (6 lpi), 01=Code (8 lpi), n: 02=8 lpi, 03=9 lpi.
[12]	**Override**	Header L n 1B, 7C, 60, 02, 00, 4C, n	n: 00=Non-override, 01=Override.
[13]	**Auto scroll**	Header M n 1B, 7C, 60, 02, 00, 4D, n	n: 00=No scroll, 01=Autoscroll TOF ONLY 02=Autoscrol at Any pos,
[14]	**Label mode**	Header N n 1B, 7C, 60, 02, 00, 4E, n	n: 00=Non label mode, 01=Label mode.
[15]	**Default page length**	Header O n 1B, 7C, 60, 02, 00, 4F, n	n: 00=11 inches, 01=12 inches.
[16]	**P.out detection**	Header P n 1B, 7C, 60, 02, 00, 50, n	n: 00=No (detection disabled), 01=Yes (detection enabled).
[17]	**P.out buzzer**	Header Q n 1B, 7C, 60, 02, 00, 51, n	n: 00=No sound, 01=Sound.

ITEM	Mode	Code & Hexadecimal	n: (Hex.) = selection
[18]	**International character**	Header R n 1B, 7C, 60, 02, 00, 52, n	n: 00=USA, 01=France, 02=Germany, 03=U.K., 04=Denmark, n: 05=Sweden, 06=Italy, 07=Spain, 08=Japan, 09=Norway, n: 0A=Denmark2, 0B=Spain2, 0C=Latin America, 0D=Turkey.
[19]	**Code page**	Header p n 1B, 7C, 60, 02, 00, 70, n	n: 00=Code page 437 01=Code page 850 02=Code page 857 03=Code page 858 04=Code page 860 05=Code page 861 06=Code page 863 07=Code page 865 08=BRASCII 09=ABICOMP 10=ISO 8859-1 11=ISO 8859-15 16=Code page 437 Greek 17=Code page 772 18=Code page 774 19=Code page 851 20=Code page 852 n: 21=Code page 853 22=Code page 855 23=Code page 866 24=Code page 869 25=Code page 1250 26=Code page 1252 27=Lithuanian-KBL 28=Bulgaria 29=IBM Russian 30=MAZOWIA 31=Code MJK 32=Hungarian 33=USSR GOST 34=ISO 8859-2 35=ISO 8859-7 36=ISO 8859-9
[20]	**EURO symbol**	Header g n 1B, 7C, 60, 02, 00, 71, n	n: 00=No : "□" at the code A4H in ISO 8859-1 01=YES : "€" at the code A4H in ISO 8859-1
[21]	**Zero style**	Header S n 1B, 7C, 60, 02, 00, 53, n	n: 00=no slash "0", 01=slashed "Ø".
[22]	**Skip over perforation**	Header T n 1B, 7C, 60, 02, 00, 54, n	n: 00=No skip, 01=Skip.
[23]	**Emulation**	Header U n 1B, 7C, 60, 02, 00, 55, n	n: 00=FX mode, 01=IBM mode, n: 02=BP-A mode, 03=BP-I mode.
[24]	**Character set**	Header V n 1B, 7C, 60, 02, 00, 56, n	n: 00=Italic set (FX mode), 01=Graphic set (FX mode), 02=IBM set 1 (IBM mode, BP-I mode), 03=IBM set 2 (IBM mode, BP-I mode).
[25]	**CR setting**	Header W n 1B, 7C, 60, 02, 00, 57, n	n: 00=CR only, 01=CR + LF, n: 02=Autofeed.
[26]	**LF setting**	Header X n 1B, 7C, 60, 02, 00, 58, n	n: 00=LF only, 01=CR + LF.
[27]	**VT setting**	Header e n 1B, 7C, 60, 02, 00, 65, n	n: 00=With print, 01=Without print.
[28]	**IBM 20 cpi**	Header f n 1B, 7C, 60, 02, 00, 66, n	n: 00=No, 01=Yes.
[29]	**IBM download character**	Header g n 1B, 7C, 60, 02, 00, 67, n	n: 00=Country, 01=Multilingual.
[30]	**Italic mode**	Header k n 1B, 7C, 60, 02, 00, 6B, n	n: 00=Code, 01=Always.
[31]	**Bold mode**	Header l n 1B, 7C, 60, 02, 00, 6C, n	n: 00=Code, 01=Always.
[32]	**Barcode command**	Header m n 1B, 7C, 60, 02, 00, 6D, n	n: 00=Mode 2, 01=Ignore. 02=Mode 1

ITEM	Mode	Code & Hexadecimal	n: (Hex.) = selection
[33]	**Bar code type**	Header n n 1B, 7C, 60, 02, 00, 6E, n	n: 00=Industrial 2/5, 01=Interleave 2/5, 02=Matrix 2/5, 03=Codabar, 04=Code 11, 05=Code 39, 06=Code 93, n: 07=Code 128, 08=EAN 8, 09=EAN 13, 0A=UPC-A, 0B=UPC-E, 0C=Postnet 0D=Element
[34]	**Bar code size**	Header o n 1B, 7C, 60, 02, 00, 6F, n	n: 00=1 01=1.5 n: 02=2 03=2.5
[35]	**Interface**	Header a n 1B, 7C, 60, 02, 00, 61, n	n: 00=Parallel, 01=Serial (RS-232C or RS-422 with optional I/F). 02=Auto
		Header a 01 a1 a2 a3 a4 a5 1B, 7C, 60, 07, 00, 61, 01, a1, a2, a3, a4, a5	
		a1: Parity bit	a1: 00=None, 01=Odd, a1:02=Even.
		a2: Data length	a2: 00=8 bits, 01=7 bits.
		a3: Stop bit	a3: 00=1 bit, 01=2 bits.
		a4: Protocol	a4: 00=DTR, 01=X-ON/X-OFF (I), a4: 02=X-ON/X-OFF (II), 03=ETX/ACK
		a5: Baud rate	a5: 00=1200 Baud, 01=2400 Baud, a5: 02=4800 Baud, 03=9600 Baud
[36]	**Serial error**	Header b n 1B, 7C, 60, 02, 00, 62, n	n: 00=Print "*", 01=Ignore.
[37]	**Buffer size**	Header c n 1B, 7C, 60, 02, 00, 63, n	n: 00=128 bytes, 01=Maximum.
[38]	**CSF option**	Header j n 1B, 7C, 60, 02, 00, 6A, n	n: 00=Not installed, 01=Single bin, n: 02=Double bin.
[39]	**Factory setting**	Header E n 1B, 7C, 60, 02, 00, 45, n	n: FF=Yes.
[40]	**Save setup**	Header Y n 1B, 7C, 60, 02, 00, 59, n	n: 00=Current, 01=MEM1, n: 02=MEM2, 03=MEM3.
[41]	**LF SPEED**	Header Z n 1B, 7C, 60, 02, 00, 5A, n	n: 00=Normal Speed 01=Half Speed
[42]	**CTS, DSR, CD Setting (Serial)**	Header d n1 n2 n3 1B, 7C, 60, 04, 00, 64, n	n1: CTS setting n1=00 CTS Disable n1=01 CTS Enable n2: DSR setting n2=00 DSR Disable n2=01 DSR Enable n3: CD setting n3=00 CD Disable n3=01 CD Enable
[43]	**ERROR Status (Parallel)**	Header x n 1B, 7C, 60, 02, 00, 78, n	n: 00=ERROR/PE SIGNAL Valid 01=ERROR/PE Signal invalid
[44]	**Invert LCD Display**	Header y n 1B, 7C, 60, 02, 00, 79, n	n: 00=Normal LCD Display 01=Invert LCD Display
[45]	**Energy Star mode**	Header z n 1B, 7C, 60, 02, 00, 7A, n	n: 00=Sleep mode valid 01=Sleep mode invalid
[46]	**Reset SW Look**	Header F n 1B, 7C, 60, 02, 00, 46, n	n: 00=Reset SW is valid in ONLINE 01=Reset SW is invalid in ONLINE

❑ *Bar code control codes*

This command becomes effective when the "Bar code command" in the extended setup options is set to "MODE1 or MODE2".

To print a bar code from your host, firstly set the bar code type designation and a desired print sizes. Then send the bar code data with BAR CODE DATA sequence(DC4 DC4 B). Most bar code type has a variable data length, if you want to add a check digit automatically, set check digit YES in the setup options and send data with one less digit. Fixed data length bar code type is specified with the number of digit in the summary table below.

Bar code type summary

Bar code	**Construction**	**ICG**	**letters (#)**	**Check digit**	**Sample data** (excl. check digit)
Industrial 2/5	5B4S	Yes	0-9	Yes (Mod 10)	1234567
Interleave 2/5	5B5S (2 letters)	No	0-9	Yes (Mod 10)	1234567
	Data length+check=Even number				
Codabar	4B3S	Yes	0-9, ab,...(24)	No	1234567
	Start/End code must be specified by non-numeric letters				
Matrix 2/5	3B2S	Yes	0-9	Yes (Mod 10)	1234567
Code 11	3B2S	Yes	0-9,"-"	Yes (Mod 11)	1234567
	Start ($^{\Delta}$)/End (Δ) code. Dual check digit				
Code 39	5B4S	Yes	0-9, AB,...(43)	Yes (Mod 43)	1234567
	Start/End code="*"				
Code 93*	3B3S	No	ASCII (128)	Yes (Mod 47)	1234567
	Dual check digit				
Code 128*	3B3S	No	ASCII (128)	Yes (Mod 103)	1234567
EAN-8*	2B2S	No	0-9	Yes (Mod 10)	1234567
	8 digits (2 prefix+5 data+check)				
EAN-13*	2B2S	No	0-9	Yes (Mod 10)	123456789012
	13 digits (2 prefix+10 data+check)				
UPC-A*	2B2S	No	0-9	Yes (Mod 10)	01234500006
	12 digits (NSC+10 data+check)				
UPC-E*	2B2S	No	0-9	Yes (Mod 10)	01234500006
	UPC-A (12 digits) data is shortened to UPC-E (10 digits) data automatically.				
Postnet	2LB3SB	No	0-9	Yes (Mod 10)	123456789
	6, 10, or 12 digits (data+check)				

Notes: (1) Bar code output from the sample data is shown on page 45.
(2) B and S in the construction item represents (wide/narrow)bar and (wide/narrow) space, respectively.
(3) LB and SB represents long and short bars, respectively.
(4) Bar code type with * consists of 4 elements; narrow bar, medium bar (wide width), wide bar (2 x medium width - narrow width), and narrow space.

About bar code element type

Any bar code type can be expressed in bar codes by varying bar elements; narrow bar, wide bar, narrow space, wide space, and intercharacter gap. However, HRI, check digit, and start/end code have to be added manually. If a specific type of bar code other than specified earlier does not satisfy your needs, create your own program to translate data to a specific bar code.

Sample program: Print "CODE39" in code 39 format using bar code element print.

Output:

```
100 OPEN "LPT1:" AS#1: WIDTH #1,255
110 DC4$=CHR$(&H14):ESC$=CHR$(&H1B)
120 SI$=CHR$(&HF):SO$=CHR$(&HE):ICG=4
130 '
140 PRINT #1,DC4$;DC4$;"@";                 'Initialize
150 PRINT #1,DC4$;DC4$;"T";CHR$(255);        'Barcode Type:Element Print
160 PRINT #1,DC4$;DC4$;"E";CHR$(0);CHR$(2);  'Narrow Bar:    2/120"
170 PRINT #1,DC4$;DC4$;"E";CHR$(1);CHR$(6);  'WIDE Bar:      6/120"
180 PRINT #1,DC4$;DC4$;"E";CHR$(2);CHR$(2);  'Narrow Space:  2/120"
190 PRINT #1,DC4$;DC4$;"E";CHR$(3);CHR$(6);  'Wide Space:    6/120"
200 PRINT #1,DC4$;DC4$;"E";CHR$(4);CHR$(2);  'Inter Char Gap:2/120"
210 PRINT #1,DC4$;DC4$;"H";CHR$(6);          'Barcode Height:6/12"
220 '
230 PRINT #1,DC4$;DC4$;"B";CHR$(9*8+7);      'Barcode Data Spequence Start
240 RESTORE 440
250 FOR I=1 TO 9:READ A:PRINT CHR$(A);:NEXT I
260 PRINT #1, CHR$(ICG);
270 FOR J=1 TO 6
280   IF J=1 THEN RESTORE 450
290   IF J=2 THEN RESTORE 460
300   IF J=3 THEN RESTORE 470
310   IF J=4 THEN RESTORE 480
320   IF J=5 THEN RESTORE 490
330   IF J=6 THEN RESTORE 500
340   FOR I=1 TO 9:READ A:PRINT CHR$(A);:NEXT I
350   PRINT #1, CHR$(ICG);
360 NEXT J
370 RESTORE 440
380 FOR I=1 TO 9:READ A:PRINT CHR$(A);:NEXT I
400 PRINT #1, CHR$(13);CHR$(10);            'CR+LF
410 CLOSE#1
420 END
430 '
440 DATA 0,3,0,2,1,2,1,2,0
450 DATA 1,2,1,2,0,3,0,2,0
460 DATA 1,2,0,2,1,2,0,3,0
470 DATA 0,2,0,2,1,3,0,2,1
480 DATA 1,2,0,2,1,3,0,2,0
490 DATA 1,2,1,3,0,2,0,2,0
500 DATA 0,2,1,3,0,2,1,2,0
```

ITEM	Mode	Code & Hexadecimal	n: (Hex.) = selection
[1]	**BAR CODE data sequence**	DC4, DC4, B, n 14, 14, 42, n	Specifies the numler ("n") of data to be regarded as bar code data. $0 \le n \le 44H$
[2]	**Check digit**	DC4, DC4, C, n 14, 14, 43, n	Selects/deselects to add a check digit automatically. n: 00=No, 01=Yes.
[3]	**Element variables**	DC4, DC4, E, n1, n2 14, 14, 45, n1, n2	Changes the width of a bar, space, or intercharacter gap. n1 specifies the type of element and n2 sets variable width in n2/120 inches. This command is not effective in postnet bar code. n1: 00=Narrow bar 01=Wide bar 02=Narrow space 03=Wide space 04=Intercharacter gap (ICG) n2: n2/120" **($1 \le n2 \le 127$)**
[4]	**HRI font**	DC4, DC4, F, n 14, 14, 46, n	Selects HRI character font. This command is not effective in postnet bar code. n: 00=Current selected font
[5]	**Bar code height**	DC4, DC4, H, n 14, 14, 48, n	Sets bar code height to n/12 inch **($1 \le n \le 120$)**. This command is not effective in postnet bar code. If $n \le 4$, HRI print is disabled.
[6]	**HRI print**	DC4, DC4, I, n 14, 14, 49, n	Selects HRI character not to be printed or to be printed below or above bar code. This command is not effective in postnet bar code. n: 00=No print 01=Below bar code 02=Above bar code
[7]	**Bar code type**	DC4, DC4, T 14, 14, 54, n	Selects a bar code type. n: 00=Industrial 2/5, n: 07=Code 128, 01=Interleave 2/5, 08=EAN 8, 02=Matrix 2/5, 09=EAN 13, 03=Codabar, 0A=UPC-A, 04=Code 11, 0B=UPC-E, 05=Code 39, 0C=Postnet 06=Code 93, FF=Element
[8]	**Guard bar extension**	DC4, DC4, G, n 14, 14, 47, n	Euables/disables the guard bar extension (long bar). in EAN and UPC. n: 00=Disable guard bar extension 01=Enable guard bar extension (default)
[9]	**Start/stop char. assignment**	DC4, DC4, N, n 14, 14, 4E, n	Assigns the start and stop character for the Codabar. n: 00=Start character 01=Stop character n: 02={"a", "b", "c", "d", "e", "t", "n", "*"} Default is "a" as the start and stop character
[10]	**Start/stop char. print**	DC4, DC4, S, n 14, 14, 53, n	Selects to print the start and stop character as HRI for Codabar, Code 11, Code 39, and Code 93. n: 00=To print(default) 01=Not to print
[11]	**Code 128 code sequence**	DC4, DC, V, n 14, 14, 56, n	Selects code sequence in Code 128 to be treated as a character value or as a character code. n: 00=character code(default) 01=character value
[12]	**Bar code end sequence**	ESC SO 1B, 0E	Indicates the end of bar code data sequence. This sequence is valid when #27 BAR CODE is to MODE2 in the SUB-MENU of SETUP MODE.
[13]	**Bar code start sequence**	ESC SI 1B, 0F	Treats the following immediate data as a bar code. This sequence is valid when #27 BAR CODE is to MODE2 in the SUB-MENU of SETUP MODE.

_Appendix C. Character sets_______________

Epson, Italic character set

L \ H	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	NUL		SP	0	@	P	`	p	NUL		SP	0	@	P	`	p
1		DC1	!	1	A	Q	a	q		DC1	!	1	A	Q	a	q
2		DC2	"	2	B	R	b	r		DC2	"	2	B	R	b	r
3		DC3	#	3	C	S	c	s		DC3	#	3	C	S	c	s
4		DC4	$	4	D	T	d	t		DC4	$	4	D	T	d	t
5			%	5	E	U	e	u			%	5	E	U	e	u
6			&	6	F	V	f	v			&	6	F	V	f	v
7	BEL		'	7	G	W	g	w	BEL		'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y	HT	EM	)	9	I	Y	i	y
A	LF		*	:	J	Z	j	z	LF		*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{	VT	ESC	+	;	K	[	k	{
C	FF		,	<	L	\	l	¦	FF		,	<	L	\	l	¦
D	CR		-	=	M	]	m	}	CR		-	=	M	]	m	}
E	SO		.	>	N	^	n	~	SO		.	>	N	^	n	~
F	SI		/	?	O	_	o	DEL	SI		/	?	O	_	o	DEL

Note: This character set is selected with **ESC t 0** in FX mode. Refer to Control code summary section.

Epson, Italic character set, extended

L \ H	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	à	§	SP	0	@	P	`	p	à	§		0	@	P	`	p
1	è	ß	!	1	A	Q	a	q	è	ß	!	1	A	Q	a	q
2	ù	DC2	"	2	B	R	b	r	ù	Æ	"	2	B	R	b	r
3	ò	DC3	#	3	C	S	c	s	ò	æ	#	3	C	S	c	s
4	ì	DC4	$	4	D	T	d	t	ì	Ø	$	4	D	T	d	t
5	°	ø	%	5	E	U	e	u	°	ø	%	5	E	U	e	u
6	£	¨	&	6	F	V	f	v	£	¨	&	6	F	V	f	v
7	BEL	Ä	'	7	G	W	g	w	¡	Ä	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x	¿	Ö	(	8	H	X	h	x
9	HT	Ü	)	9	I	Y	i	y	Ñ	Ü	)	9	I	Y	i	y
A	LF	ä	*	:	J	Z	j	z	ñ	ä	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{	¤	ö	+	;	K	[	k	{
C	FF	ü	,	<	L	\	l	¦	₧	ü	,	<	L	\	l	¦
D	CR	É	-	=	M	]	m	}	Å	É	-	=	M	]	m	}
E	SO	é	.	>	N	^	n	~	å	é	.	>	N	^	n	~
F	SI	¥	/	?	O	_	o	DEL	ç	¥	/	?	O	_	o	Ø

Note: This character set is selected with **ESC 6, ESC I 1,** and **ESC t 0** in FX mode. Refer to Control code summary section.

Epson, Graphic character set

L \ H	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	NUL		SP	0	@	P	`	p	NUL		á	░	└	╨	α	≡
1		DC1	!	1	A	Q	a	q		DC1	í	▒	┴	╤	β	±
2		DC2	"	2	B	R	b	r		DC2	ó	▓	┬	╥	Γ	≥
3		DC3	#	3	C	S	c	s		DC3	ú	│	├	╙	π	≤
4		DC4	$	4	D	T	d	t		DC4	ñ	┤	─	╘	Σ	⌠
5			%	5	E	U	e	u			Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v			ª	╢	╞	╓	µ	÷
7	BEL		´	7	G	W	g	w	BEL		º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	BS	CAN	¿	╕	╚	╪	Φ	°
9	HT	EM	)	9	I	Y	i	y	HT	EM	⌐	╣	╔	┘	Θ	∙
A	LF		*	:	J	Z	j	z	LF		¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	VT	ESC	½	╗	╦	█	δ	√
C	FF		,	<	L	\	l	¦	FF		¼	╝	╠	▄	∞	^{n}
D	CR		-	=	M	]	m	}	CR		¡	╜	═	▌	ø	^{2}
E	SO		.	>	N	^	n	~	SO		«	╛	╬	▐	∈	■
F	SI		/	?	O	_	o	DEL	SI		»	┐	╧	▀	∩	DEL

Note: This character set is selected with **ESC t 1** in FX mode. Refer to Control code summary section.

Epson, Graphic character set, extended

L \ H	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	à	§	SP	0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	è	ß	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2	ù	DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	ò	DC3	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	ì	DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	°	ø	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	£	¨	&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	BEL	Ä	´	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	HT	Ü	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	LF	ä	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	FF	ü	,	<	L	\	l	¦	î	£	¼	╝	╠	▄	∞	^{n}
D	CR	É	-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	^{2}
E	SO	é	.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	∈	■
F	SI	¥	/	?	O	_	o	DEL	Å	ƒ	»	┐	╧	▀	∩	DEL

Note: This character set is selected with **ESC 6, ESC I 1,** and **ESC t 1** in FX mode. Refer to Control code summary section.

IBM character set 1

L \ H	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	NUL		SP	0	@	P	`	p	NUL		á	░	└	╨	α	≡
1		DC1	!	1	A	Q	a	q		DC1	í	▒	┴	╤	ß	±
2		DC2	"	2	B	R	b	r		DC2	ó	▓	┬	╥	Γ	≥
3		DC3	#	3	C	S	c	s		DC3	ú	│	├	╙	π	≤
4		DC4	$	4	D	T	d	t		DC4	ñ	┤	─	╘	Σ	⌠
5			%	5	E	U	e	u			Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v			ª	╢	╞	╓	µ	÷
7	BEL		'	7	G	W	g	w	BEL		º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	BS	CAN	¿	╕	╚	╪	Φ	°
9	HT	EM	)	9	I	Y	i	y	HT	EM	⌐	╣	╔	┘	Θ	∙
A	LF		*	:	J	Z	j	z	LF		¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	VT	ESC	½	╗	╦	█	δ	√
C	FF		,	<	L	\	l	¦	FF		¼	╝	╠	▄	∞	ⁿ
D	CR		-	=	M	]	m	}	CR		¡	╜	═	▌	ø	²
E	SO		.	>	N	^	n	~	SO		«	╛	╬	▐	∈	■
F	SI		/	?	O	_	o		SI		»	┐	╧	▀	∩	SP

Note: This character set is selected with **ESC 7** in IBM mode. Refer to Control code summary section.

IBM character set 2

L \ H	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	NUL		SP	0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1		DC1	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	DC3	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠		&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	BEL		'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	FF		,	<	L	\	l	¦	î	£	¼	╝	╠	▄	∞	ⁿ
D	CR		-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	²
E	SO		.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	∈	■
F	SI		/	?	O	_	o		Å	ƒ	»	┐	╧	▀	∩	SP

Note: This character set is selected with **ESC 6** in IBM mode. Refer to Control code summary section.

IBM all character set

L \ H	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	Ø	►	SP	0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	¦	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	∈	■
F	☼	▼	/	?	O	_	o	△	Å	ƒ	»	┐	╧	▀	∩	SP

Note: This character set is selected with **ESC **. Refer to Control code summary section.

International character set

Country \ Hex	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A.	#	$	@	[	\	]	^	`	{	¦	}	~
FRANCE	#	$	à	°	ç	§	^	`	é	ù	è	¨
GERMANY	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
U.K.	£	$	@	[	\	]	^	`	{	¦	}	~
DENMARK	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
ITALY	#	$	@	°	\	é	^	ù	à	ò	è	ì
SPAIN	₧	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
JAPAN	#	$	@	[	¥	]	^	`	{	¦	}	~
NORWAY	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
DENMARK 2	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
SPAIN 2	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
LATIN AMERICA	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
TURKEY	#	ı	İ	Ç	Ö	Ş	Ü	ğ	ç	ö	ş	ü

Note: This character set is selected with **ESC R, n**. Refer to Control code summary section.

BP-A character set

H / L	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	NUL		SP	0	@	P	`	p	NUL		å	Å	ò	ö		
1			!	1	A	Q	a	q			ä	Ä	ì	Ç		
2		DC2	"	2	B	R	b	r		DC2	à	Ŏ	¡	°		
3			#	3	C	S	c	s			â	ô	¿	´		
4		DC4	$	4	D	T	d	t		DC4	É	Ü	Ñ	¨		
5			%	5	E	U	e	u			È	ü	ñ	SP		
6			&	6	F	V	f	v			é	ù	₧	SP		
7	BEL		´	7	G	W	g	w	BEL		è	û	Æ	SP		
8	BS	CAN	(	8	H	X	h	x	BS	CAN	ê	¥	æ	SP		
9	HT		)	9	I	Y	i	y	HT		#	£	Ø	SP		
A	LF		*	:	J	Z	j	z	LF		@	¢	ø	SP		
B	VT	ESC	+	;	K	[	k	{	VT	ESC	ß	§	[	{		
C	FF		,	<	L	\	l	¦	FF		`	↑	\	¦		
D	CR	GS	-	=	M	]	m	}	CR	GS	¤	↓	]	}		
E	SO		.	>	N	^	n	~	SO		µ	←	^	~		
F	SI		/	?	O	_	o	DEL	SI		$	→	SP	SP		DEL

Note: This character set is selected in BP-A mode.

BP-I character set 1

H / L	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	NUL		SP	0	@	P	`	p	NUL		á	░	└	╨	α	≡
1			!	1	A	Q	a	q			í	▒	┴	╤	β	±
2		DC2	"	2	B	R	b	r		DC2	ó	▓	┬	╥	Γ	≥
3			#	3	C	S	c	s			ú	│	├	╙	π	≤
4		DC4	$	4	D	T	d	t		DC4	ñ	┤	─	╘	Σ	⌠
5			%	5	E	U	e	u			Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v			ª	╢	╞	╓	µ	÷
7	BEL		´	7	G	W	g	w	BEL		º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	BS	CAN	¿	╕	╚	╪	Φ	°
9	HT		)	9	I	Y	i	y	HT		⌐	╣	╔	┘	Θ	∙
A	LF		*	:	J	Z	j	z	LF		¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	VT	ESC	½	╗	╦	█	δ	√
C	FF		,	<	L	\	l	¦	FF		¼	╝	╠	▄	∞	ⁿ
D	CR	GS	-	=	M	]	m	}	CR	GS	¡	╜	═	▌	ø	²
E	SO		.	>	N	^	n	~	SO		«	╛	╬	▐	∈	■
F	SI		/	?	O	_	o		SI		»	┐	╧	▀	∩	SP

Note: This character set is selected with **ESC 7** in BP-I mode. Refer to Control code summary section.

BP-I character set 2

L \ H	0 (0)	1 (16)	2 (32)	3 (48)	4 (64)	5 (80)	6 (96)	7 (112)	8 (128)	9 (144)	A (160)	B (176)	C (192)	D (208)	E (224)	F (240)
0	NUL	▶	SP	0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺		!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2	☻	DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥		#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	BEL	↨	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	HT	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	•
A	LF	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	FF		,	<	L	\	l	¦	î	£	¼	╝	╠	▄	∞	ⁿ
D	CR	GS	-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	²
E	SO		.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	∈	■
F	SI		/	?	O	_	o	Δ	Å	ƒ	»	┐	╧	▀	∩	SP

Note: This character set is selected with **ESC 6** in BP-I mode.

Code Page 437 (USA)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2	●	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	∈	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	╧	▀	∩	

Code Page 437 Greek (Greek)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Α	Ρ	ι	░	└	╨	ω	Ω
1	☺	◄	!	1	A	Q	a	q	Β	Σ	κ	▒	┴	╤	ά	±
2	●	↕	"	2	B	R	b	r	Γ	Τ	λ	▓	┬	╥	έ	≥
3	♥	‼	#	3	C	S	c	s	Δ	Υ	μ	│	├	╙	ή	≤
4	♦	¶	$	4	D	T	d	t	Ε	Φ	ν	┤	─	╘	ϊ	⌠
5	♣	§	%	5	E	U	e	u	Ζ	Χ	ξ	╡	┼	╒	ί	⌡
6	♠	▬	&	6	F	V	f	v	Η	Ψ	ο	╢	╞	╓	ό	÷
7	•	↨	'	7	G	W	g	w	Θ	Ω	π	╖	╟	╫	ύ	≈
8	◘	↑	(	8	H	X	h	x	Ι	α	ρ	╕	╚	╪	ϋ	°
9	○	↓	)	9	I	Y	i	y	Κ	β	σ	╣	╔	┘	ώ	£
A	◙	→	*	:	J	Z	j	z	Λ	γ	ς	║	╩	┌	Ά	¥
B	♂	←	+	;	K	[	k	{	Μ	δ	τ	╗	╦	█	Έ	√
C	♀	∟	,	<	L	\	l	|	Ν	ε	υ	╝	╠	▄	Ή	ⁿ
D	♪	↔	-	=	M	]	m	}	Ξ	ζ	φ	╜	═	▌	Ί	²
E	♫	▲	.	>	N	^	n	~	Ο	η	χ	╛	╬	▐	Ό	■
F	☼	▼	/	?	O	_	o	⌂	Π	θ	ψ	┐	╧	▀	Ύ	

Code Page 772 (Lithuanian)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	А	Р	а	░	└	ą	р	Ё
1	☺	◄	!	1	A	Q	a	q	Б	С	б	▒	┴	č	с	ё
2	●	↕	"	2	B	R	b	r	В	Т	в	▓	┬	ę	т	≥
3	♥	‼	#	3	C	S	c	s	Г	У	г	│	├	ė	у	≤
4	♦	¶	$	4	D	T	d	t	Д	Ф	д	┤	─	į	ф	„
5	♣	§	%	5	E	U	e	u	Е	Х	е	Ą	┼	š	х	“
6	♠	▬	&	6	F	V	f	v	Ж	Ц	ж	Č	Ų	ų	ц	÷
7	•	↨	'	7	G	W	g	w	З	Ч	з	Ę	Ū	ū	ч	≈
8	◘	↑	(	8	H	X	h	x	И	Ш	и	Ė	╚	ž	ш	°
9	○	↓	)	9	I	Y	i	y	Й	Щ	й	╣	╔	┘	щ	∙
A	◙	→	*	:	J	Z	j	z	К	Ъ	к	║	╩	┌	ъ	·
B	♂	←	+	;	K	[	k	{	Л	Ы	л	╗	╦	█	ы	√
C	♀	∟	,	<	L	\	l	|	М	Ь	м	╝	╠	▄	ь	ⁿ
D	♪	↔	-	=	M	]	m	}	Н	Э	н	Į	═	▌	э	²
E	♫	▲	.	>	N	^	n	~	О	Ю	о	Š	╬	▐	ю	■
F	☼	▼	/	?	O	_	o	⌂	П	Я	п	┐	Ž	▀	я	

Code Page 774 (Lithuanian)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	ą	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	č	ß	±
2	●	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	ę	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	ė	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	į	Σ	„
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Ą	┼	š	σ	“
6	♠	▬	&	6	F	V	f	v	å	û	ª	Č	Ų	ų	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	Ę	Ū	ū	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	Ė	╚	ž	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ì	¥	¡	Į	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ä	₧	«	Š	╬	▐	∈	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	Ž	▀	∩	

Code Page 850 (Multilingual)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	ð	Ó	-
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	Ð	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	‗
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
6	♠	▬	&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
C	♀	∟	,	<	L	\	l	¦	î	£	¼	╝	╠	▄	ý	³
D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	¢	═	¦	Ý	²
E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	Ì	¯	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	¤	▀	´	

Code Page 851 (Greek)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	Ί	ϊ	░	└	Τ	ζ	-
1	☺	◄	!	1	A	Q	a	q	ü		ΐ	▒	┴	Υ	η	±
2	☻	↕	"	2	B	R	b	r	é	Ό	ό	▓	┬	Φ	θ	υ
3	♥	‼	#	3	C	S	c	s	â	ô	ύ	│	├	Χ	ι	φ
4	♦	¶	$	4	D	T	d	t	ä	ö	Α	┤	─	Ψ	κ	χ
5	♣	§	%	5	E	U	e	u	à	Ύ	Β	Κ	┼	Ω	λ	§
6	♠	▬	&	6	F	V	f	v	Ά	û	Γ	Λ	Π	α	μ	ψ
7	•	↨	'	7	G	W	g	w	ç	ù	Δ	Μ	Ρ	β	ν	¸
8	◘	↑	(	8	H	X	h	x	ê	Ώ	Ε	Ν	╚	γ	ξ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	Ζ	╣	╔	┘	ο	¨
A	◙	→	*	:	J	Z	j	z	è	Ü	Η	║	╩	┌	π	ω
B	♂	←	+	;	K	[	k	{	ï	ά	½	╗	╦	█	ρ	ϋ
C	♀	∟	,	<	L	\	l	¦	î	£	Θ	╝	╠	▄	σ	ΰ
D	♪	↔	-	=	M	]	m	}	Έ	έ	Ι	Ξ	═	δ	ς	ώ
E	♫	▲	.	>	N	^	n	~	Ä	ή	«	Ο	╬	ε	τ	■
F	☼	▼	/	?	O	_	o	⌂	Ή	ί	»	┐	Σ	▀	´	

Code Page 852 (East Europe)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	đ	Ó	-
1	☺	◄	!	1	A	Q	a	q	ü	Ĺ	í	▒	┴	Đ	ß	˝
2	☻	↕	"	2	B	R	b	r	é	ĺ	ó	▓	┬	Ď	Ô	˛
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ń	ˇ
4	♦	¶	$	4	D	T	d	t	ä	ö	Ą	┤	─	ď	ń	˘
5	♣	§	%	5	E	U	e	u	ů	Ľ	ą	Á	┼	Ň	ň	§
6	♠	▬	&	6	F	V	f	v	ć	ľ	Ž	Â	Ă	Í	Š	÷
7	•	↨	'	7	G	W	g	w	ç	Ś	ž	Ě	ă	Î	š	¸
8	◘	↑	(	8	H	X	h	x	ł	ś	Ę	Ş	╚	ě	Ŕ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	ę	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	Ő	Ü		║	╩	┌	ŕ	˙
B	♂	←	+	;	K	[	k	{	ő	Ť	ź	╗	╦	█	Ű	ű
C	♀	∟	,	<	L	\	l	¦	î	ť	Č	╝	╠	▄	ý	Ř
D	♪	↔	-	=	M	]	m	}	Ź	Ł	ş	Ż	═	Ţ	Ý	ř
E	♫	▲	.	>	N	^	n	~	Ä	×	«	ż	╬	Ů	ţ	■
F	☼	▼	/	?	O	_	o	⌂	Ć	č	»	┐	¤	▀	´	

Code Page 853 (Turkish)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└		Ó	-
1	☺	◄	!	1	A	Q	a	q	ü	ċ	í	▒	┴		ß	
2	☻	↕	"	2	B	R	b	r	é	Ċ	ó	▓	┬	Ê	Ô	ℓ
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	ŉ
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	Ġ	˘
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	ġ	§
6	♠	▬	&	6	F	V	f	v	ĉ	û	Ğ	Â	Ŝ	Í	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	ğ	À	ŝ	Î	Ħ	¸
8	◘	↑	(	8	H	X	h	x	ê	İ	Ĥ	Ş	╚	Ï	ħ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	ĥ	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	è	Ü		║	╩	┌	Û	˙
B	♂	←	+	;	K	[	k	{	ï	ĝ	½	╗	╦	█	Ù	
C	♀	∟	,	<	L	\	l	¦	î	£	Ĵ	╝	╠	▄	Ŭ	³
D	♪	↔	-	=	M	]	m	}	ì	Ĝ	ş	Ż	═		ŭ	²
E	♫	▲	.	>	N	^	n	~	Ä	×	«	ż	╬	Ì		■
F	☼	▼	/	?	O	_	o	⌂	Ĉ	ĵ	»	┐	¤	▀	´	

Code Page 855 (Cyrillic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	ђ	љ	а	░	└	л	Я	-
1	☺	◄	!	1	A	Q	a	q	Ђ	Љ	А	▒	┴	Л	р	ы
2	☻	↕	"	2	B	R	b	r	ѓ	њ	б	▓	┬	м	Р	Ы
3	♥	‼	#	3	C	S	c	s	Ѓ	Њ	Б	│	├	М	с	з
4	♦	¶	$	4	D	T	d	t	ё	ћ	ц	┤	─	н	С	З
5	♣	§	%	5	E	U	e	u	Ё	Ћ	Ц	х	┼	Н	т	ш
6	♠	▬	&	6	F	V	f	v	є	ќ	д	Х	к	о	Т	Ш
7	•	↨	'	7	G	W	g	w	Є	Ќ	Д	и	К	О	у	э
8	◘	↑	(	8	H	X	h	x	ѕ	ў	е	И	╚	п	У	Э
9	○	↓	)	9	I	Y	i	y	Ѕ	Ў	Е	╣	╔	┘	ж	щ
A	◙	→	*	:	J	Z	j	z	і	џ	ф	║	╩	┌	Ж	Щ
B	♂	←	+	;	K	[	k	{	І	Џ	Ф	╗	╦	█	в	ч
C	♀	∟	,	<	L	\	l	¦	ї	ю	г	╝	╠	▄	В	Ч
D	♪	↔	-	=	M	]	m	}	Ї	Ю	Г	й	═	П	ь	
E	♫	▲	.	>	N	^	n	~	ј	ъ	«	Й	╬	я	Ь	■
F	☼	▼	/	?	O	_	o	⌂	Ј	Ъ	»	┐	¤	▀	№	

Code Page 857 (Turkish)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	º	Ó	-
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	ª	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼		Õ	§
6	♠	▬	&	6	F	V	f	v	å	û	Ğ	Â	ã	Í	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	ğ	À	Ã	Î		¸
8	◘	↑	(	8	H	X	h	x	ê	İ	¿	©	╚	Ï	×	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
C	♀	∟	,	<	L	\	l	¦	î	£	¼	╝	╠	▄	ì	³
D	♪	↔	-	=	M	]	m	}	ı	Ø	¡	¢	═	¦	ÿ	²
E	♫	▲	.	>	N	^	n	~	Ä	Ş	«	¥	╬	Ì	¯	■
F	☼	▼	/	?	O	_	o	⌂	Å	ş	»	┐	¤	▀	´	

Code Page 858 (Multilingual-Euro)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	ð	Ó	-
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	Ð	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	‗
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	€	Õ	§
6	♠	▬	&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
C	♀	∟	,	<	L	\	l	¦	î	£	¼	╝	╠	▄	ý	³
D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	¢	═	¦	Ý	²
E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	Ì	¯	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	¤	▀	´	

Code Page 860 (Portguese)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	À	í	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	È	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ã	õ	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	Á	Ú	ª	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	Ì	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	Ê	Õ	Ò	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	Í	¢	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	¦	Ô	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ì	Ù	¡	╜	═	▌	φ	²
E	♫	▲	.	>	N	^	n	~	Ã	₧	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o	⌂	Â	Ó	»	┐	╧	▀	∩	

Code Page 861 (Icelandic)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	Á	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	þ	Í	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	Ó	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	ç	Ý	Ú	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ý	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	Ð	ø	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	ð	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	Þ	Ø	¡	╜	═	▌	φ	²
E	♫	▲	.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	╧	▀	∩	

Code Page 863 (Canadian-French)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	¦	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	È	´	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	Ê	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	Â	Ë	¨	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	Ï	¸	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	¶	û	³	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	¯	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	¤	Î	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ô	⌐	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	‗	Ù	¾	╜	═	▌	φ	²
E	♫	▲	.	>	N	^	n	~	À	Û	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o	⌂	§	ƒ	»	┐	╧	▀	∩	

Code Page 865 (Norwegian)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	╜	═	▌	φ	²
E	♫	▲	.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	ε	■
F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	¤	┐	╧	▀	∩	

Code Page 866 (Russian)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	А	Р	а	░	└	╨	р	Ё
1	☺	◄	!	1	A	Q	a	q	Б	С	б	▒	┴	╤	с	ё
2	☻	↕	"	2	B	R	b	r	В	Т	в	▓	┬	╥	т	Є
3	♥	‼	#	3	C	S	c	s	Г	У	г	│	├	╙	у	є
4	♦	¶	$	4	D	T	d	t	Д	Ф	д	┤	─	╘	ф	Ї
5	♣	§	%	5	E	U	e	u	Е	Х	е	╡	┼	╒	х	ї
6	♠	▬	&	6	F	V	f	v	Ж	Ц	ж	╢	╞	╓	ц	Ў
7	•	↨	'	7	G	W	g	w	З	Ч	з	╖	╟	╫	ч	ў
8	◘	↑	(	8	H	X	h	x	И	Ш	и	╕	╚	╪	ш	°
9	○	↓	)	9	I	Y	i	y	Й	Щ	й	╣	╔	┘	щ	∙
A	◙	→	*	:	J	Z	j	z	К	Ъ	к	║	╩	┌	ъ	·
B	♂	←	+	;	K	[	k	{	Л	Ы	л	╗	╦	█	ы	√
C	♀	∟	,	<	L	\	l	|	М	Ь	м	╝	╠	▄	ь	№
D	♪	↔	-	=	M	]	m	}	Н	Э	н	╜	═	▌	э	¤
E	♫	▲	.	>	N	^	n	~	О	Ю	о	╛	╬	▐	ю	■
F	☼	▼	/	?	O	_	o	⌂	П	Я	п	┐	╧	▀	я	

Code Page 869 (Greek)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p		Ί	ϊ	░	└	Τ	ζ	-
1	☺	◄	!	1	A	Q	a	q		Ϊ	ΐ	▒	┴	Υ	η	±
2	☻	↕	"	2	B	R	b	r		Ό	ό	▓	┬	Φ	θ	υ
3	♥	‼	#	3	C	S	c	s			ύ	│	├	Χ	ι	φ
4	♦	¶	$	4	D	T	d	t			Α	┤	─	Ψ	κ	χ
5	♣	§	%	5	E	U	e	u		Ύ	Β	Κ	┼	Ω	λ	§
6	♠	▬	&	6	F	V	f	v	Ά	Ϋ	Γ	Λ	Π	α	μ	ψ
7	•	↨	'	7	G	W	g	w		©	Δ	Μ	Ρ	β	ν	΅
8	◘	↑	(	8	H	X	h	x	·	Ώ	Ε	Ν	╚	γ	ξ	°
9	○	↓	)	9	I	Y	i	y	¬	²	Ζ	╣	╔	┘	ο	¨
A	◙	→	*	:	J	Z	j	z	¦	³	Η	║	╩	┌	π	ω
B	♂	←	+	;	K	[	k	{	‘	ά	½	╗	╦	█	ρ	ϋ
C	♀	∟	,	<	L	\	l	¦	’	£	Θ	╝	╠	▄	σ	ΰ
D	♪	↔	-	=	M	]	m	}	Έ	έ	Ι	Ξ	═	δ	ς	ώ
E	♫	▲	.	>	N	^	n	~	―	ή	«	Ο	╬	ε	τ	■
F	☼	▼	/	?	O	_	o	⌂	Ή	ί	»	┐	Σ	▀	΄	

Code Page 1250 (Latin 2)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p				°	Ŕ	Đ	ŕ	đ
1	☺	◄	!	1	A	Q	a	q		‘	ˇ	±	Á	Ń	á	ń
2	☻	↕	"	2	B	R	b	r	‚	’	˘	˛	Â	Ň	â	ň
3	♥	‼	#	3	C	S	c	s		“	Ł	ł	Ă	Ó	ă	ó
4	♦	¶	$	4	D	T	d	t	„	”	¤	´	Ä	Ô	ä	ô
5	♣	§	%	5	E	U	e	u	…	•	Ą	µ	Ĺ	Ő	ĺ	ő
6	♠	▬	&	6	F	V	f	v	†	–	¦	¶	Ć	Ö	ć	ö
7	•	↨	'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
8	◘	↑	(	8	H	X	h	x			¨	¸	Č	Ř	č	ř
9	○	↓	)	9	I	Y	i	y	‰	™	©	ą	É	Ů	é	ů
A	◙	→	*	:	J	Z	j	z	Š	š	Ş	ş	Ę	Ú	ę	ú
B	♂	←	+	;	K	[	k	{	‹	›	«	»	Ë	Ű	ë	ű
C	♀	∟	,	<	L	\	l	¦	Ś	ś	¬	Ľ	Ě	Ü	ě	ü
D	♪	↔	-	=	M	]	m	}	Ť	ť	-	˝	Í	Ý	í	ý
E	♫	▲	.	>	N	^	n	~	Ž	ž	®	ľ	Î	Ţ	î	ţ
F	☼	▼	/	?	O	_	o	⌂	Ź	ź	Ż	ż	Ď	ß	ď	˙

Code Page 1252 (Latin 1)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p				°	À	Ð	à	ð
1	☺	◄	!	1	A	Q	a	q		‘	¡	±	Á	Ñ	á	ñ
2	☻	↕	"	2	B	R	b	r	‚	’	¢	²	Â	Ò	â	ò
3	♥	‼	#	3	C	S	c	s	ƒ	“	£	³	Ã	Ó	ã	ó
4	♦	¶	$	4	D	T	d	t	„	”	¤	´	Ä	Ô	ä	ô
5	♣	§	%	5	E	U	e	u	…	•	¥	µ	Å	Õ	å	õ
6	♠	▬	&	6	F	V	f	v	†	–	¦	¶	Æ	Ö	æ	ö
7	•	↨	'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
8	◘	↑	(	8	H	X	h	x	ˆ	˜	¨	¸	È	Ø	è	ø
9	○	↓	)	9	I	Y	i	y	‰	™	©	¹	É	Ù	é	ù
A	◙	→	*	:	J	Z	j	z	Š	š	ª	º	Ê	Ú	ê	ú
B	♂	←	+	;	K	[	k	{	‹	›	«	»	Ë	Û	ë	û
C	♀	∟	,	<	L	\	l	¦	Œ	œ	¬	¼	Ì	Ü	ì	ü
D	♪	↔	-	=	M	]	m	}			-	½	Í	Ý	í	ý
E	♫	▲	.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F	☼	▼	/	?	O	_	o	⌂		Ÿ	¯	¿	Ï	ß	ï	ÿ

Lithuaninan-KBL

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	А	Р	а	░	└	╨	р	Ę
1	☺	◄	!	1	A	Q	a	q	Б	С	б	▒	┴	╤	с	ę
2	☻	↕	"	2	B	R	b	r	В	Т	в	▓	┬	╥	т	Ė
3	♥	‼	#	3	C	S	c	s	Г	У	г	│	├	╙	у	ė
4	♦	¶	$	4	D	T	d	t	Д	Ф	д	┤	─	╘	ф	Į
5	♣	§	%	5	E	U	e	u	Е	Х	е	╡	┼	╒	х	į
6	♠	▬	&	6	F	V	f	v	Ж	Ц	ж	╢	╞	╓	ц	Š
7	•	↨	'	7	G	W	g	w	З	Ч	з	╖	╟	╫	ч	š
8	◘	↑	(	8	H	X	h	x	И	Ш	и	╕	╚	╪	ш	Ų
9	○	↓	)	9	I	Y	i	y	Й	Щ	й	╣	╔	┘	щ	ų
A	◙	→	*	:	J	Z	j	z	К	Ъ	к	║	╩	┌	ъ	Ū
B	♂	←	+	;	K	[	k	{	Л	Ы	л	╗	╦	█	ы	ū
C	♀	∟	,	<	L	\	l	¦	М	Ь	м	╝	╠	Ą	ь	Ž
D	♪	↔	-	=	M	]	m	}	Н	Э	н	╜	═	ą	э	ž
E	♫	▲	.	>	N	^	n	~	О	Ю	о	╛	╬	Č	ю	■
F	☼	▼	/	?	O	_	o	⌂	П	Я	п	┐	╧	č	я	

Bulgaria

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	А	Р	а	р	└	░	α	≡
1	☺	◄	!	1	A	Q	a	q	Б	С	б	с	┴	▒	β	±
2	☻	↕	"	2	B	R	b	r	В	Т	в	т	┬	▓	Γ	≥
3	♥	‼	#	3	C	S	c	s	Г	У	г	у	├	│	π	≤
4	♦	¶	$	4	D	T	d	t	Д	Ф	д	ф	─	┤	Σ	⌠
5	♣	§	%	5	E	U	e	u	Е	Х	е	х	┼	№	σ	⌡
6	♠	▬	&	6	F	V	f	v	Ж	Ц	ж	ц	╣	§	µ	÷
7	•	↨	'	7	G	W	g	w	З	Ч	з	ч	║	╗	τ	≈
8	◘	↑	(	8	H	X	h	x	И	Ш	и	ш	╚	╝	Φ	°
9	○	↓	)	9	I	Y	i	y	Й	Щ	й	щ	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	К	Ъ	к	ъ	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	Л	Ы	л	ы	╦	█	δ	√
C	♀	∟	,	<	L	\	l	¦	М	Ь	м	ь	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	Н	Э	н	э	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	О	Ю	о	ю	╬	▐	∈	■
F	☼	▼	/	?	O	_	o	Δ	П	Я	п	я	┐	▀	∩	

IBM Russian

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	А	Р	а	░	└	╨	р	≡
1	☺	◄	!	1	A	Q	a	q	Б	С	б	▒	┴	╤	с	±
2	☻	↕	"	2	B	R	b	r	В	Т	в	▓	┬	╥	т	≥
3	♥	‼	#	3	C	S	c	s	Г	У	г	│	├	╙	у	≤
4	♦	¶	$	4	D	T	d	t	Д	Ф	д	┤	─	╘	ф	⌠
5	♣	§	%	5	E	U	e	u	Е	Х	е	╡	┼	╒	х	⌡
6	♠	▬	&	6	F	V	f	v	Ж	Ц	ж	╢	╞	╓	ц	÷
7	•	↨	'	7	G	W	g	w	З	Ч	з	╖	╟	╫	ч	≈
8	◘	↑	(	8	H	X	h	x	И	Ш	и	╕	╚	╪	ш	°
9	○	↓	)	9	I	Y	i	y	Й	Щ	й	╣	╔	┘	щ	∙
A	◙	→	*	:	J	Z	j	z	К	Ъ	к	║	╩	┌	ъ	·
B	♂	←	+	;	K	[	k	{	Л	Ы	л	╗	╦	█	ы	√
C	♀	∟	,	<	L	\	l	¦	М	Ь	м	╝	╠	▄	ь	ⁿ
D	♪	↔	-	=	M	]	m	}	Н	Э	н	╜	═	▌	э	²
E	♫	▲	.	>	N	^	n	~	О	Ю	о	╛	╬	▐	ю	■
F	☼	▼	/	?	O	_	o	Δ	П	Я	п	┐	╧	▀	я	

MAZOWIA (Polish)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	Ę	Ź	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	ę	Ż	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	ł	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ô	Ó	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ń	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	Ć	Ń	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	ą	û	ź	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	ç	ù	ż	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	Ś	§	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	zł	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	¦	î	Ł	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ć	¥	¡	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ä	ś	«	╛	╬	▐	∈	■
F	☼	▼	/	?	O	_	o	Δ	Ą	ƒ	»	┐	╧	▀	∩	

Code MJK (CSFR)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Č	É	á	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	ž	í	▒	┴	╤	ß	±
2	☻	↕	"	2	B	R	b	r	é	Ž	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	ď	ô	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ň	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	Ď	Ó	Ň	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	Ť	ů	Ô	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	č	Ú	Ô	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ě	ý	š	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	Ě	Ö	ř	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	Ĺ	Ü	ŕ	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	Í	Š	Ŕ	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	¦	ľ	Ľ	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	ĺ	Ý	§	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ä	Ř	«	╛	╬	▐	∈	■
F	☼	▼	/	?	O	_	o	Δ	Á	ť	»	┐	╧	▀	∩	

Hungarian

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	β	±
2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	‼	#	3	C	S	c	s	â	ő	ú	│	├	╙	π	≤
4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	Ó	Ñ	╡	┼	╒	σ	⌡
6	♠	▬	&	6	F	V	f	v	å	ű	ª	╢	╞	╓	µ	÷
7	•	↨	'	7	G	W	g	w	ç	Ú	º	╖	╟	╫	τ	≈
8	◘	↑	(	8	H	X	h	x	ê	Ű	¿	╕	╚	╪	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
D	♪	↔	-	=	M	]	m	}	í	¥	¡	╜	═	▌	ø	²
E	♫	▲	.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	∈	■
F	☼	▼	/	?	O	_	o	⌂	Á	ƒ	»	┐	╧	▀	∩	

BRASCII

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p				°	À	Ð	à	ð
1	☺	◄	!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2	☻	↕	"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3	♥	‼	#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4	♦	¶	$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5	♣	§	%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6	♠	▬	&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7	•	↨	'	7	G	W	g	w			§	·	Ç	Œ	ç	œ
8	◘	↑	(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9	○	↓	)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A	◙	→	*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B	♂	←	+	;	K	[	k	{			«	»	Ë	Û	ë	û
C	♀	∟	,	<	L	\	l	|			¬	¼	Ì	Ü	ì	ü
D	♪	↔	-	=	M	]	m	}			-	½	Í	Ý	í	ý
E	♫	▲	.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F	☼	▼	/	?	O	_	o	⌂			¯	¿	Ï	ß	ï	ÿ

Abicomp

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p				Ò	¡	ò		
1	☺	◄	!	1	A	Q	a	q			À	Ó	à	ó		
2	☻	↕	"	2	B	R	b	r			Á	Ô	á	ô		
3	♥	‼	#	3	C	S	c	s			Â	Õ	â	õ		
4	♦	¶	$	4	D	T	d	t			Ã	Ö	ã	ö		
5	♣	§	%	5	E	U	e	u			Ä	Œ	ä	œ		
6	♠	▬	&	6	F	V	f	v			Ç	Ù	ç	ù		
7	•	↨	'	7	G	W	g	w			È	Ú	è	ú		
8	◘	↑	(	8	H	X	h	x			É	Û	é	û		
9	○	↓	)	9	I	Y	i	y			Ê	Ü	ê	ü		
A	◙	→	*	:	J	Z	j	z			Ë	Ÿ	ë	ÿ		
B	♂	←	+	;	K	[	k	{			Ì	¨	ì	ß		
C	♀	∟	,	<	L	\	l	|			Í	£	í	ª		
D	♪	↔	-	=	M	]	m	}			Î	·	î	º		
E	♫	▲	.	>	N	^	n	~			Ï	§	ï	¿		
F	☼	▼	/	?	O	_	o	⌂			Ñ	°	ñ	±		

USSR GOST (Russian)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p	╧	╔	┌	А	Р	а	р	Ё
1	☺	◄	!	1	A	Q	a	q	╨	╗	┐	Б	С	б	с	ё
2	☻	↕	"	2	B	R	b	r	╤	╝	┘	В	Т	в	т	/
3	♥	‼	#	3	C	S	c	s	╡	╚	└	Г	У	г	у	\
4	♦	¶	$	4	D	T	d	t	╢	═	─	Д	Ф	д	ф	/
5	♣	§	%	5	E	U	e	u	╖	║	│	Е	Х	е	х	\
6	♠	▬	&	6	F	V	f	v	╕	╦	┬	Ж	Ц	ж	ц	→
7	•	↨	'	7	G	W	g	w	╥	╣	┤	З	Ч	з	ч	←
8	◘	↑	(	8	H	X	h	x	╙	╩	┴	И	Ш	и	ш	↑
9	○	↓	)	9	I	Y	i	y	╘	╠	├	Й	Щ	й	щ	↓
A	◙	→	*	:	J	Z	j	z	╒	╬	┼	К	Ъ	к	ъ	÷
B	♂	←	+	;	K	[	k	{	╜	░	█	Л	Ы	л	ы	±
C	♀	∟	,	<	L	\	l	|	╛	▒	▄	М	Ь	м	ь	№
D	♪	↔	-	=	M	]	m	}	╞	▓	▌	Н	Э	н	э	¤
E	♫	▲	.	>	N	^	n	~	╟	╫	▐	О	Ю	о	ю	■
F	☼	▼	/	?	O	_	o	⌂	╓	╪	▀	П	Я	п	я	

ISO 8859-1

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p				°	À	Ð	à	ð
1	☺	◄	!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2	●	↕	"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3	♥	‼	#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4	♦	¶	$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5	♣	§	%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6	♠	▬	&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7	•	↨	'	7	G	W	g	w			§	·	Ç	×	ç	÷
8	◘	↑	(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9	○	↓	)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A	◙	→	*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B	♂	←	+	;	K	[	k	{			«	»	Ë	Û	ë	û
C	♀	∟	,	<	L	\	l	¦			¬	¼	Ì	Ü	ì	ü
D	♪	↔	-	=	M	]	m	}			-	½	Í	Ý	í	ý
E	♫	▲	.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F	☼	▼	/	?	O	_	o	⌂			¯	¿	Ï	ß	ï	ÿ

ISO 8859-2

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p				°	Ŕ	Đ	ŕ	đ
1	☺	◄	!	1	A	Q	a	q			Ą	ą	Á	Ń	á	ń
2	●	↕	"	2	B	R	b	r			˘	˛	Â	Ň	â	ň
3	♥	‼	#	3	C	S	c	s			Ł	ł	Ă	Ó	ă	ó
4	♦	¶	$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5	♣	§	%	5	E	U	e	u			Ľ	ľ	Ĺ	Ő	ĺ	ő
6	♠	▬	&	6	F	V	f	v			Ś	ś	Ć	Ö	ć	ö
7	•	↨	'	7	G	W	g	w			§	ˇ	Ç	×	ç	÷
8	◘	↑	(	8	H	X	h	x			¨	¸	Č	Ř	č	ř
9	○	↓	)	9	I	Y	i	y			Š	š	É	Ů	é	ů
A	◙	→	*	:	J	Z	j	z			Ş	ş	Ę	Ú	ę	ú
B	♂	←	+	;	K	[	k	{			Ť	ť	Ë	Ű	ë	ű
C	♀	∟	,	<	L	\	l	¦			Ź	ź	Ě	Ü	ě	ü
D	♪	↔	-	=	M	]	m	}			-	˝	Í	Ý	í	ý
E	♫	▲	.	>	N	^	n	~			Ž	ž	Î	Ţ	î	ţ
F	☼	▼	/	?	O	_	o	⌂			Ż	ż	Ď	ß	ď	˙

ISO 8859-7

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p				°	ΐ	Π	ΰ	π
1	☺	◄	!	1	A	Q	a	q			‘	±	Α	Ρ	α	ρ
2	●	↕	"	2	B	R	b	r			’	²	Β		β	ς
3	♥	‼	#	3	C	S	c	s			£	³	Γ	Σ	γ	σ
4	♦	¶	$	4	D	T	d	t				΄	Δ	Τ	δ	τ
5	♣	§	%	5	E	U	e	u				΅	Ε	Υ	ε	υ
6	♠	▬	&	6	F	V	f	v			¦	Ά	Ζ	Φ	ζ	φ
7	•	↨	'	7	G	W	g	w			§	·	Η	Χ	η	χ
8	◘	↑	(	8	H	X	h	x			¨	Έ	Θ	Ψ	θ	ψ
9	○	↓	)	9	I	Y	i	y			©	Ή	Ι	Ω	ι	ω
A	◙	→	*	:	J	Z	j	z				Ί	Κ	Ϊ	κ	ϊ
B	♂	←	+	;	K	[	k	{			«	»	Λ	Ϋ	λ	ϋ
C	♀	∟	,	<	L	\	l	¦			¬	Ό	Μ	ά	μ	ό
D	♪	↔	-	=	M	]	m	}				½	Ν	έ	ν	ύ
E	♫	▲	.	>	N	^	n	~				Ύ	Ξ	ή	ξ	ώ
F	☼	▼	/	?	O	_	o	⌂			―	Ώ	Ο	ί	ο	

ISO 8859-9

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Ø	►		0	@	P	`	p				°	À	Ğ	à	ğ
1	☺	◄	!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2	●	↕	"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3	♥	‼	#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4	♦	¶	$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
5	♣	§	%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6	♠	▬	&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7	•	↨	'	7	G	W	g	w			§	·	Ç	×	ç	÷
8	◘	↑	(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9	○	↓	)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A	◙	→	*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B	♂	←	+	;	K	[	k	{			«	»	Ë	Û	ë	û
C	♀	∟	,	<	L	\	l	¦			¬	¼	Ì	Ü	ì	ü
D	♪	↔	-	=	M	]	m	}			-	½	Í	İ	í	ı
E	♫	▲	.	>	N	^	n	~			®	¾	Î	Ş	î	ş
F	☼	▼	/	?	O	_	o	⌂			¯	¿	Ï	ß	ï	ÿ

ISO 8859-15

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	∅	►		0	@	P	`	p				°	À	Ð	à	ð
1	☺	◄	!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2	☻	↕	"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3	♥	‼	#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4	♦	¶	$	4	D	T	d	t			€	Ž	Ä	Ô	ä	ô
5	♣	§	%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6	♠	▬	&	6	F	V	f	v			Š	¶	Æ	Ö	æ	ö
7	•	↨	'	7	G	W	g	w			§	·	Ç	×	ç	÷
8	◘	↑	(	8	H	X	h	x			š	ž	È	Ø	è	ø
9	○	↓	)	9	I	Y	i	y			©	¹	É	Ù	é	ù
A	◙	→	*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
B	♂	←	+	;	K	[	k	{			«	»	Ë	Û	ë	û
C	♀	∟	,	<	L	\	l	¦			¬	Œ	Ì	Ü	ì	ü
D	♪	↔	-	=	M	]	m	}			-	œ	Í	Ý	í	ý
E	♫	▲	.	>	N	^	n	~			®	Ÿ	Î	Þ	î	þ
F	☼	▼	/	?	O	_	o	⌂			¯	¿	Ï	ß	ï	ÿ

Maschinenlärminformationsverordnung 3. GSGV, 18. 01. 1991:
Der arbeitsplatzbezogene Schalldruckpegel beträgt 70 dB(A) oder weniger gemäß ISO 7779.

This unit complies with the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.
Dies Gerät entspricht den Bedingungen der Niederspannungs-Vorschrift 73/23/EEC und dem EMVG nach 89/336/EEC.

THIS DIGITAL APPARATUS DOES NOT EXCEED THE CLASS B LIMITS FOR RADIO NOISE EMISSIONS FROM DIGITAL APPARATUS AS SET OUT IN THE RADIO INTERFERENCE REGULATIONS OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

LE PRÉSENT APPAREIL NUMÉRIQUE N' ÉMET PAS DE BRUITS RADIOÉLECTRIQUES DÉPASSANT LES LIMITES APPLICABLES AUX APPAREILS NUMÉRIQUES DE CLASSE B PRESCRITES DANS LE RÉGLEMENT SUR LE BROUILLAGE RADIOÉLECTRIQUE ÉDICTÉ PAR LE MINISTÉRE DES COMMUNICATIONS DU CANADA.

SEIKO Precision Inc.
PRINTER DIVISION
1-1-1, AKANEHAMA, NARASHINO-SHI, CHIBA 275-8558 JAPAN